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"*Hacerles creer que hay plomo"* ("Convincing them there is lead"): Health, Environment, and Power in Abra Pampa, Argentina

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"*Hacerles creer que hay plomo*" ("Convincing them there is lead"): Health, Environment, and Power in Abra Pampa, Argentina

by

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Abstract

"Hacerles creer que hay plomo" (*"Convincing them there is lead")*: Health, Environment, and Power in Abra Pampa, Argentina

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When the lead smelting plant Metal Huasi closed in the late 1980s, it left 60,000 tons of heavy metal waste deposited throughout Abra Pampa, Argentina, a town in the Northwestern province of Jujuy. Much of this waste, predominantly composed of lead, remains exposed to the air, over 20 years after the smelter has closed, and Abra Pampa residents await the completion of a polemical environmental remediation plan that was drafted in 2007 but is years behind schedule. The issue of lead contamination has largely been normalized and obscured by management of public information and scientific discourse, as well as through the active discrediting of evidence of human suffering in the town.

Ethnographic research conducted in Abra Pampa in 2010 engages with Javier Auyero and Débora Swistun's sociological work on "environmental suffering" and "toxic

uncertainty", concepts used to analyze how confusion on sources, effects, and solutions to widespread environmental contamination is socially constructed and reflects political power dynamics. In Abra Pampa, much uncertainty about the gravity and extent of lead contamination has been compounded and capitalized upon by officials working in association with the lucrative mining industry in Jujuy. This case study posits that disagreement among Abra Pampa residents on the actual health risks that exposure to lead waste poses is largely a result of contradictory studies and long periods of governmental inaction toward environmental remediation. Additionally, discourse on the dangers of lead contamination among Abra Pampa residents is fragmented, reflecting class bias and discrimination that tends to blame certain residents for exposure to contamination. Despite several published studies indicating dangerously high levels of lead in residents' blood, concerned residents liken their consistent criticism of governmental inaction on the issue to a process of "convincing" authorities that there is indeed lead, and that it represents a threat to the population.

This case study concludes with sketches of some of the possibilities for mobilization toward positive change in Abra Pampa – namely pressuring governmental agencies into providing full environmental and health remediation – which parts from Auyero and Swistun's notion that widespread toxic uncertainty might preclude such mobilization.

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INTRODUCTION

When the lead smelting plant Metal Huasi first closed in the late 1980s, it left roughly 60,000 tons of heavy metal waste deposited throughout Abra Pampa, Argentina, a town of about 13,000 in the Northwestern province of Jujuy. This waste, which consists predominantly of lead, accumulated in three sites since the smelter began processing metals from nearby mines in the late 1940s: it walled a riverbed of the Arroyo Tabladitas just outside of Abra Pampa, towered in a 15,000-ton pile next to the smelting plant in the town center, and was spread in a football field-sized area of land in the growing Barrio 12 de Octubre, a few blocks east of the smelter. Much of this waste remains exposed to the air – now over 20 years after the smelter has closed – and Abra Pampa residents await the completion of a polemical environmental remediation (cleanup) plan that was drafted in 2007 that is years behind schedule. With the exception of a few sporadic instances of sustained collective mobilization before the smelter closed in the late 1980s and again from about 2004-2007, health and environmental problems associated with lead contamination have largely been normalized and obscured by management of public information and scientific discourse, as well as through the active discrediting of evidence of human suffering in the town.

Ethnographic research conducted in Abra Pampa in 2010 engages with sociological work on "environmental suffering," which examines the ways in which everyday routines and competing discourse on contamination cause confusion and uncertainty on its sources, effects, and associated risk.[1] This confusion and uncertainty

[1] In their case study of Flammable, a shantytown in Buenos Aires, Javier Auyero and Débora Swistun define "environmental suffering" as a form of "social suffering": "suffering as the product of agents' position in the social space" (16). In this case, social suffering is specifically that which is "caused by the concrete polluting actions of specific actors" and which "is sometimes appropriated, [and] other times denied or amplified, by existing institutions, usually for the sake of their own legitimation." Javier Auyero

can relegate suffering linked to environmental contamination to background noise and perhaps preclude collective mobilization around it due to an absence of a common understanding on its effects. In Abra Pampa, the issue of lead is indeed fraught with ambiguity. Despite the existence government studies published as early as 1986 that acknowledge high levels of lead in residents' blood and Abra Pampa's notoriety as a highly contaminated place in local and national media, lead contamination has only sporadically been a salient point of contention for most of the town's history (at least in the public eye). The reason for this is closely linked to power relations in Abra Pampa and between the community and the mining industry in Argentina, which tend to compound and capitalize on the uncertainty that residents face on the extent and gravity of contamination in the town. Concerned residents liken their consistent criticism of governmental authorities' inaction on lead contamination to a process of "convincing them there is lead," as one resident put it, pointing to an almost complete denial of the existence of the toxic substance and its health effects.

The present study provides three "snapshots" of perceptions of lead contamination that illustrate the ways in which it is obscured in Abra Pampa: through confusion exacerbated by "outsider" and "expert" control and production of knowledge on lead contamination, through class-based discourse that tends to blame some residents for their own suffering, and through the lens of a few concerned residents who have consistently voiced concern on the issue of lead. It concludes by sketching the "empirical possibilities" for positive change in the community.

I traveled to Abra Pampa in January, June and July of 2010 to conduct ethnographic research on the ways in which residents discuss and live with lead

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and Débora Swistun, *Flammable: Environmental Suffering in an Argentine Shantytown* (New York: Oxford University Press, 2009), 17.

contamination. This work built on earlier research carried out during April and May of 2009 to prepare a report for the Human Rights Clinic of the University of Texas School of Law on breaches of health and environmental rights in the town. During these visits, I briefly lived the hope, contradiction, and frustration that are part of Abra Pampa's environmental and public health realities, and which have intensified for some residents in recent years as they await promised remediation. Some of the uncertainty that exists on contamination in Abra Pampa today stems from the governing province of Jujuy's management of and inaction on remediation in Abra Pampa, as well as its attempts to control information on actual risks residents face. The ministries of Health and Production and Environment of the province of Jujuy have discredited independent studies on levels of lead contamination in the town, particularly when said studies provide evidence of the human consequences of activity of the lucrative mining industry. As a researcher, this has made "objectively" understanding the question of lead contamination particularly difficult; after visiting the town and spending hours talking with residents who suspect grave health problems due to lead poisoning, there seem to be clear environmental and health crises. Few people speak publicly about these crises, however, and little public, official information exists to quantify, or in some cases even recognize, the extent to which lead poses a threat to residents. Confusion has also been exacerbated in recent years after the partial, haphazard initiation of environmental remediation, which has displaced mobilization on contamination and sent mixed signals on the actual risks residents face from exposure to lead waste.

On my second trip to Abra Pampa in January of 2010, I experienced firsthand the provincial government's attitude toward independently gathered and produced information on the issue of lead contamination. I spent some time in San Salvador de Jujuy, the capital of the province of Jujuy, to conduct interviews with people who have

intervened on the issue of Metal Huasi waste in Abra Pampa, including the Ministry of Health of the province. I set up an interview with Dr. Marcelo Bellone, Secretary of Policy Planning and Health Regulation, with whom I had met in 2009 with other members of the Human Rights Clinic of the University of Texas to discuss whether health treatment of Abra Pampa residents was included as part of a proposed environmental remediation plan. The Clinic's report, which had been published in the time between the fact-finding delegation's visit in April 2009 and my second independent visit in January 2010, makes several recommendations to the Ministry of Health of the Province of Jujuy, namely on treating and informing residents of health risks they face due to lead contamination.[2] When I arrived at Dr. Bellone's office in January of 2010 to follow up on questions on access to health information and education in Abra Pampa, I was met by not only Dr. Bellone himself, but officials from five other branches of the provincial government who Bellone had invited to the meeting as well. Thinking (naively, in hindsight) that this was an opportune moment to obtain information I was missing on the government's remediation plans, I introduced myself and explained that I had come to Jujuy to research environmental remediation in Abra Pampa.

I soon learned that the Ministry of Health had also seen this interview as an opportune moment – not necessarily for exchange of information, but to publicly discredit the report my colleagues and I had published a few months earlier. They had all seen the report, and instead of addressing questions on my independent research project, they spent an hour telling me that my work was "completely invalid," had "no scientific basis," was "dangerous," and even "a human rights abuse in itself." Their particular

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2 Danielle Nasr, Emily Spangenberg, Meghan Vail, Christopher Willett, and Matthew Wooten. "Abra Pampa: A Community Polluted, A Community Ignored: The Struggle for Environmental and Health Rights in Argentina" (human rights report, University of Texas School of Law, 2009), 3.

objection to the publication of the human rights report was that it had not received prior "approval" from the province. I was told that the report was not a sound basis for further research on Abra Pampa, since it cited independent studies that they claimed had not received publication approval from the provincial government and would cause "undue alarm" in Abra Pampa.

During this meeting, two groups of newspaper photographers separately entered Dr. Bellone's office and began taking photos of the interview. Later, a man entered with a video camera and began filming the meeting. Not wanting to jeopardize the work my colleagues and I had done a few months prior, I kept quiet during most of this time – even though I firmly believed we had done nothing wrong, and that I was building on legitimate scientific research that academics and health professionals had conducted in Abra Pampa in the past. The officials in this meeting told me I would have to "completely revise" the human rights report my colleagues and I had produced, and handed me a report of a study that the Ministry of Health had conducted in Abra Pampa to "georeference" cases of lead poisoning in the town before I left the meeting. The report they gave me concluded that 10 percent of Abra Pampa residents were "probably" contaminated with lead,[3] contradicting a study from the INQA group (*Instituto de Química Aplicada*, "Applied Chemistry Institute" of the National University of Jujuy) from 2006, which the Clinic's human rights report references, that concluded that 80 percent of children living near Metal Huasi had dangerous levels of lead in their blood. Ironically, the Ministry of Health's report uses parts of the introduction to INQA's 2006 report introduction verbatim, despite having declared it "scientifically invalid" in their meeting with me.

After spending more time in the province and in Abra Pampa itself, I learned that this type of scenario is not uncommon in interactions with the provincial government, especially when it comes to research on environmental, health, and land rights violations associated with the lucrative mining industry. Fortunately, all that came of my January 2010 meeting in Dr. Bellone's office was a newspaper article "affirming" the provincial authorities' position. In this article, Dr. Bellone is quoted as saying "It is a question of where they [the authors of the University of Texas report] got their data, because if [the report] is based on false premises, logically they will arrive at false final results."[4] The provincial government's reactions to the Human Rights Clinic report, my presence in Jujuy, and to other groups' dissemination of independent research on the topic of lead contamination in Abra Pampa indicate an unwillingness to acknowledge and act upon an objective health and environmental threat. Government officials claim that "every day we have been working on cleaning up all the contaminating material and improving the health of the population…There are many things that just might not be tangible right now."[5] This has been the official government line since a remediation plan, still far from complete, was drafted in 2007. Information has been strategically managed and framed in a way to discredit claims to the contrary.

State management of information and "framing" of the issue of contamination in Abra Pampa represent one manifestation of what Javier Auyero and Débora Swistun call

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4 Original: "Es decir de donde obtuvieron los datos porque si parte de premisas falsas, lógicamente llegarán a resultados finales falsos." "Bellone se reunió con representantes de la Universidad de Texas por contaminación," *Jujuy al dia,* 9 January 2010, http://www.periodicociudad.com/index.php?option=com_content&view=article&id=3069:bellone-se-reunio-con-representantes-de-la-universidad-de-texas-por-contaminacion-ambiental.

5 Original: "[H]oy por hoy se trabajó en la extracción de todo el material pasivo y en la salud de la población, como así también se está construyendo un nuevo hospital en Abra Pampa. Es decir son muchas cosas que quizás no sean tan tangibles actualmente." From "Bellone se reunió con representantes de la Universidad de Texas por contaminación ambiental."

"toxic uncertainty," a concept that will be applied to the case of Abra Pampa to analyze perceptions of lead contamination there. In their case study of Flammable, a similarly highly polluted community outside of Buenos Aires, Auyero and Swistun define the concept of "toxic uncertainty" as "multiple, confused, and often contradictory points of view on the polluted habitat."[6] Analysis of toxic uncertainty identifies "the interacting 'invisible elbows' of external power forces and of everyday routine survival struggles" that shape residents' suffering.[7] In Abra Pampa, the government of the province of Jujuy's discursive framing of the issue of contamination, interventions toward environmental remediation, studies that attempt to define or negate the extent of contamination in the town, and residents' narratives on lead all contribute to this uncertainty. This study of Abra Pampa draws on Auyero and Swistun's concept of toxic uncertainty to analyze the mechanisms by which residents understand lead contamination, as well as the positions of agents who seek to define it as a public health issue.

It should be noted here that, although conceptually the cases of Abra Pampa and Flammable have much in common, there are a few important empirical differences between the two places that have given the present study of Abra Pampa a distinct starting-off point. While Auyero and Swistun's case study of Flammable suggests a link between toxic uncertainty and collective inaction on contamination, the present study of Abra Pampa does not make that connection for two reasons. One is that the sources of contamination in each place affect the identification of those "responsible" for suffering (which is, at least ostensibly, clearer in Abra Pampa). Unlike Flammable, where multiple factories in a petrochemical compound pollute the neighborhood and surrounding area, in

6 Auyero and Swistun, 65.
7 Auyero and Swistun, 6.

Abra Pampa there is one "agent" of industrial contamination – Metal Huasi – and one commonly-blamed culprit of health and environmental problems – lead – which changes the nature of uncertainty and has provided a common "target" for action, when it does occur. A second reason why the same link between toxic uncertainty and collective "inaction" is not drawn in the case of Abra Pampa is the fact that there have been periods of mobilization around lead contamination in Abra Pampa that have sustained a core group of concerned, vocal residents (though they represent a slim minority) who link the problem of lead contamination to broader land rights struggles and opposition to mining. Though periods of highly-visible collective mobilization have been sporadic and short-lived, it does not seem accurate to describe their periodic nature as indicative of inaction.

A third element that is key to understanding the question of contamination, suffering, and social domination in Abra Pampa, but that is not part of the case study of Auyero and Swistun's case study, has to do with race and ethnicity. The fact that the majority of Abra Pampa residents identify as Kolla, an indigenous community that has lived in present-day Northern Argentina and Southern Bolivia for centuries, figures prominently in the context of environmental suffering that they face at the hands extractive industry activity in the province of Jujuy. The relationship between the historically marginalized communities that live near and in Abra Pampa and the political elites that control the mining industry in Jujuy and management of the lead waste in the town has much to do with the perpetuation of environmental suffering there. In the case of Abra Pampa, generally speaking, collective understandings of and actions on contamination from lead waste appear to reflect historical class and social inequality that are a legacy of colonial development in the area. The fact that lead contamination has most often been kept a "latent" issue in Abra Pampa is, to many residents, further evidence that the Kolla communities living in the area are politically "forgotten" and

"invisible." It is certainly true that not all those who identify as Kolla share a common understanding on the extent and gravity of lead contamination, but the construction of uncertainty and perception of political possibilities on action toward remediation often reflect narratives of historical marginalization and disempowerment.

A BRIEF NOTE ON METHODOLOGY

This case study of toxic uncertainty in Abra Pampa outlines the ways in which said uncertainty is manifested, where it originates, and how it replicates structural inequality and discrimination between Abra Pampa residents and governmental institutions, as well as between Abra Pampa residents themselves. To this end, the study draws on extensive interviews and excerpts from life histories that were gathered during the course of three visits to Argentina to conduct fieldwork on management and perceptions of lead contamination in Abra Pampa. The first visit, which was as part of the previously mentioned fact-finding delegation of the Human Rights Clinic of the University of Texas School of Law, was during one week in Argentina. During this time, interviews were conducted with health and government officials, lawyers, and journalists in Buenos Aires and San Salvador de Jujuy, and with two families living in the Barrio 12 de Octubre in Abra Pampa. The subsequent two visits were to conduct research that was mostly ethnographic in nature – one week in January, and eight weeks in Abra Pampa itself in June and July of 2010. During this time, I stayed in the Barrio 12 de Octubre, the neighborhood which is built around a large spread of heavy metal slag, to observe the ways in which people interact with lead contamination and the role it plays in their everyday lives.

The principal question driving ethnographic research conducted in Abra Pampa in January, June, and July of 2010 was to analyze how interviewed residents (selected using

a "snowball sampling" method) made sense of contamination – the extent to which they viewed it as an issue, whether it was a topic of daily conversation/concern, and how they related to State agencies in charge of environmental remediation. This research was motivated partially by a desire to follow up on the Human Rights Clinic's report of 2009, and but also to engage more closely with the community to more thoroughly articulate the power dynamics inherent to the mining industry and to the proposed environmental remediation plan. For this reason, the majority of my in-depth interviews were with residents who are among the most critical and/or vocal about the issue of lead waste in Abra Pampa, and their perspectives have informed what is written here to present what is obscured in public, "official" discourse on contamination, which is often managed with mining interests in mind.

There is an obvious gender bias among the interviews I was able to conduct during my visits to Abra Pampa: most of them are with men. Though I had a handful of extensive interviews with women, most of which are included here and are mostly with mothers concerned for the health of their children, many women who I approached or to whom I was referred would defer to their husbands, fathers, or sons as those who "knew more" about the issue of lead contamination, or would decline to discuss lead altogether for being a "political" issue. The implications of these gendered understandings and framings of the issue of lead contamination would be pertinent to future study of lead contamination in Abra Pampa, as they likely reflect dimensions of environmental suffering that are under-explored here.[8]

8 For example, in their case study of Flammable, Auyero and Swistun note that mothers in particular "bear the brunt of responsibility for care and, sometimes, the brunt of the blame: lead contamination is frequently seen in the neighborhood as evidence of 'bad mothers'." (Auyero and Swistun, 17).

For safety and privacy purposes, names of Abra Pampa residents have been changed and professions obscured to protect the identity of interviewees.

OUTLINE

The first chapter provides an overview of the issue of lead contamination in Abra Pampa and situates the town in its broader context of social and economic exclusion, drawing from one longtime resident's life history to construct a history and social overview of Abra Pampa. It includes a chronology of major studies and reports that deal with the issue of lead contamination in Abra Pampa, as well an overview of instances in which lead and its health effects were relatively prominent topics of public discussion and action. This chapter also provides details of the environmental remediation plan that was drafted in 2007, two decades after Metal Huasi closed.

Chapter Two outlines the present study's place in existing sociological literature on power, environmental suffering, and collective understandings of contamination. This chapter outlines major concepts on "issueness" and dimensions of power which John Gaventa, Steven Lukes, and Matthew Crenson have developed, which are applied here to the provincial and municipal governments' management of information and knowledge about contamination in Abra Pampa. It also draws heavily on Javier Auyero and Débora Swistun's case study of toxic uncertainty in Flammable, outlining the central points for analysis from that work that can be applied to the present study of Abra Pampa. It highlights the empirical distinctions that can be drawn between the case of Abra Pampa, Flammable, and Lorenzo Natali's case study of Huelva, Spain, particularly with regard to the extent to which contamination is defined as an immediate threat or an actionable grievance.

Chapter Three outlines the ways in which the State – particularly the government of the province of Jujuy -- has managed knowledge and scientific information on the effects of exposure to lead waste in Abra Pampa. It highlights some of the contradictions in official discourse on the gravity of lead contamination in the town, particularly since the inception of the environmental remediation plan in 2007. It makes a critical comparison of how remediation discourse ties in with that of the lucrative mining industry in Argentina, and applies theory on the exercise of power as evasion of "issueness" to State rhetoric on lead in Abra Pampa.

Chapter Four analyses the role of outsiders and "experts" in the definition of the problem of lead contamination in Abra Pampa, specifically in the role that various studies and interventions have played in residents' own understandings of the actual risks they face. It emphasizes the role of health studies in residents' measure of their own health or illness due to exposure to lead, as well as the effect that the remediation process has had on residents' estimations on risk and perceptions of contamination. I also briefly analyze the roles my own projects -- both the human rights report and my Master's thesis research – have played in residents' understandings of contamination and potential solutions to environmental and health crises.

Chapter Five provides an analysis of how discourse on the effects of exposure to lead waste often fall along class lines within Abra Pampa. The chapter presents the "healthy professional" versus "sick poor" dichotomy that is present in some denials of the existence of suffering due to lead contamination in Abra Pampa, and that situate contamination in a broader narrative of recent social "decline" in the town. It also presents the "flipside" of these explanations through the perspective of those who suffer from lead contamination, who say that their suffering is compounded by their socioeconomic status and lack of access to adequate health care.

Chapter Six offers perspectives on the struggle toward demanding recognition of and action on lead contamination from those who have remained consistently vocal and critical of the municipality of Abra Pampa and the province of Jujuy for failing to guarantee rights to health and a healthy environment in Abra Pampa. It presents some of the obstacles and stigmatization they have faced for naming lead contamination as an objective health threat, as well as some of the "empirical possibilities" for positive change in Abra Pampa.

The study concludes with a note on future directions for research on toxic uncertainty and environmental justice framing, as well as a further note on what theoretical and empirical avenues for change might in exist in Abra Pampa and other similarly highly contaminated places where "toxic uncertainty" exists.

Above all, this case study of Abra Pampa aims to reveal how industrial contamination disproportionately affects those living in its centers of production. Through its analysis of popular uncertainty and confusion on the extent and gravity of lead contamination, its intention is to highlight the construction of ambiguities that obscure objective health threats. The intention here is not to blame Abra Pampa residents for their own "confusion" or to present the "failure" of collective mobilization to emerge, but rather to reveal how conflicted discourses on the unfavorable aspects of extractive industry activity disproportionately discredit those who have the most to lose from denial of its human cost.

CHAPTER 1: BACKGROUND AND HISTORY OF LEAD CONTAMINATION IN ABRA PAMPA

Metal Huasi operated from the late 1940s until the late 1980s, but lead contamination has only relatively recently been a highly-public issue of contention in Abra Pampa, with sporadic collective mobilization around obviously visible signs of contamination. When residents reflect on Metal Huasi and the issue of lead contamination, they often note that public manifestations of concern were highest in the late 1980s and again from about 2004-2007. These periods coincide with health studies that had been conducted in Abra Pampa to determine the amount of lead in the blood of resident children, who are particularly susceptible to problems associated with lead contamination. The following chapter provides a brief history of Abra Pampa, as well as knowledge of and action on lead contamination there, according to documentary research and the recollections of several lifelong residents. Here, it is clear that much "uncertainty" is likely the result of outside interventions, as many remember lead contamination becoming a salient point of contention after health studies were conducted and as the result of actions taken toward proposed remediation.

When Fernando was 18 in 1973, he moved to Abra Pampa from a small farming community roughly twenty kilometers away. Like many current Abra Pampa residents, Fernando says, he moved to the town for work when it was no longer economically feasible to stay in the countryside and make a living as a farmer. He attributes much of the current and past migration to Abra Pampa from surrounding rural areas to declining rural subsidizes and prices for agricultural goods. "[Farming] wasn't profitable at all, and it keeps getting worse. People are coming to Abra Pampa, abandoning their homes in the

countryside," he says, noting that he has seen the population of Abra Pampa "explode" over the years.

It is difficult to estimate what the population of Abra Pampa might be, largely because its population figures vary from person to person. In the last national census of 2001, the population of Abra Pampa is listed at 7,496. Given the rate at which Abra Pampa has expanded, many residents estimate that the population is now around 13,000, though some claim there are as many as 18,000 residents. Most agree that the population has doubled in the past decade, however, despite the fact that in 2004 it had a staggering unemployment rate of 70 percent. This figure reflects stark inequality in the region as a whole: the Northwestern region of Argentina has been a dubbed a "critical region," as 60 percent of its population lives below the poverty line (compared to 44 percent nationwide).[9] In Abra Pampa, there is a general perception, which Fernando shares, that as the town has expanded, poverty rates have soared. "People come here with nothing," he says. "Abra Pampa keeps growing, but only in size. When people move here, they create new neighborhoods, but they're poor neighborhoods, on the margin, you know?"

Many Abra Pampa residents say that the population boom and constant low rates of poverty have led to a host of other social problems that they list as immediate, pressing concerns – and lead is not usually key among them. Many blame demographic changes and low employment rates for widespread problems such as alcoholism, depression, teenage suicide, teenage drug use, increased illness rates, and a relatively recent surge in drug trafficking. These problems are compounded by the fact that social and health services in Abra Pampa are scarce.

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[9] "Informe de Desarrollo Humano: Argentina después de la crisis: Un tiempo de oportunidades," *Programa de las NacionesUnidas para el Desarrollo,* 2005, http://hdr.undp.org/en/reports/national/latinamericathecaribbean/argentina/name,3388,en.html.

Fernando notes that, although many residents feel they are better off in Abra Pampa – which, as capital of the department of Cochinoca, serves as a regional hub for basic goods and health care services -- but that employment has always been scarce. "There isn't work. Aside from teaching, working in security, in the army or the police, or maybe sometimes for the municipality, there aren't jobs here," he says. He notes that politicians always promise this will change – for example, by promoting llama cultivation, by promoting the insertion of women into the market to sell crafts – but that job opportunities continue to be scarce, informal, short-lived, and come and go with the seasons.

Abra Pampa residents have also ridden the boom-and-bust cycle of the mining industry in Argentina. The mountainous province of Jujuy is often referred to as the "mining capital of Argentina" due to its wealth of mineral reserves. Fernando notes that jobs in the mining sector do represent some of the most lucrative opportunities for residents in the area, despite the fact that there are relatively few jobs in mining now. Often young men will leave for a few months at a time to work in mines in the area or even as far as away as Patagonia, at the opposite end of the country. "You see all these new cars here? That's not because there's money in Abra Pampa. Those belong to the young miners who don't work here," Fernando says, referring to vehicles that pass by his house. Fluctuations in the mining industry have also had an impact in population growth in Abra Pampa; according to several interviews with lifelong residents, when nearby mines such as Pirquitas and Pan de Azúcar closed in recent decades, most of the families who lived near the mines moved to Abra Pampa.

When nearby mines were functioning, Metal Huasi represented an important source of employment in the town because it would process lead, zinc, and silver from these places. "Metal Huasi has always existed, but not always as a problem. It was a

source of work," Fernando says. Although he never worked in the smelter, his father did. "I didn't think of it as a bad thing. The worst thing that ever happened was that he had a minor eye injury there one time from a piece of hot metal." Fernando has a small metal paperweight – "It's probably lead," he says with a laugh – which is about the size of a stick of butter and has "METAL HUASI" stamped on it sitting on a bookshelf in his living room. "It's my souvenir," he says. "A lot of people used to have these." Fernando, and many other lifelong Abra Pampa residents, recall Metal Huasi having a strong presence in the community for years. In addition to employing fifty to sixty men at a time – a relatively high proportion of the population – for many years Metal Huasi sponsored an athletic club and soccer team, children would play on its grounds, and young men would take pieces of the waste that accumulated and sell them to local jewelers, especially if they believed it contained silver.

Like Fernando, many lifelong residents of Abra Pampa share positive – or at least ambivalent – memories of Metal Huasi, in which lead contamination or hazards related to work there was never openly discussed. However, in recounting the history of Metal Huasi in the community, many residents cite contradictory facts on public opinion and awareness of contamination. At the same time that they state that Metal Huasi was "just a source of work" or that it was "never a problem", they will often mention how difficult it was to breathe when Metal Huasi was operating, since thick, black clouds of smoke would billow above the town at these times:

> "It was horrible – it would burn, your nose would hurt, you would have the worst headaches when those clouds were there."
>
> "When Metal Huasi operated, it would rain lead and corrode everything around it."
>
> "When the smelter functioned, the entire town would be closed in a cloud of lead."

Fernando lived half a block from Metal Huasi from the time he moved to Abra Pampa until about five years ago, when he moved to the Barrio 12 de Octubre, just a few blocks away. Despite noting that he and his neighbors did not think of Metal Huasi as a problem, he too notes how his throat and nose would burn when Metal Huasi was operating, how clothes hung out to dry "would sometimes come back totally black," and how his parents and, later, wife and children would complain of bone aches which later were believed to be a result of breathing in lead particles. "We didn't always know that lead was harmful," he says, "We first found out that it was not because there was information about it or because the doctors talked about it, but we just thought so out of intuition."

In addition to spewing black "clouds of lead", Metal Huasi continually polluted Abra Pampa through the accumulation of heavy metal waste – predominantly lead – throughout three major areas of town. In addition to the Metal Huasi site, which is in the center of the town and where a towering pile of lead often referred to as *el cerro* or *el cerrito* stood for decades, lead waste was also spread in what is now the Barrio 12 de Octubre, a few blocks east of the smelter site, and was used to dam the Arroyo Tabladitas, about a kilometer away from the town. The maps below provide a visual representation of the three sites where heavy metal waste accumulated while Metal Huasi was operating, most of which remains exposed to the air today.

The first map is of the entire town of Abra Pampa, with two major sites of waste pileup labeled in red. For years, the most strikingly visible portion of the waste (the *cerrito*) was at the Metal Huasi site, some three blocks north of the town's central plaza ("A" on the map). The second map shows the Northeastern quadrant of the map of Abra Pampa, providing a closer look at where the waste had accumulated for decades. The lighter-colored portions of the map – the houses that appear white and in smaller-shaped

blocks here – represent newer sections of the town that have mostly been built in the last decade, when Abra Pampa's population approximately doubled. It is important to note that these lighter areas of the map show that Abra Pampa is growing around and toward waste – that which is clustered in the Barrio 12 de Octubre (the irregular shape outlined in red) and near the Arroyo Tabladitas (in the upper right-hand corner), and toward the town's open-pit landfill (outlined in blue in the lower right-hand corner).

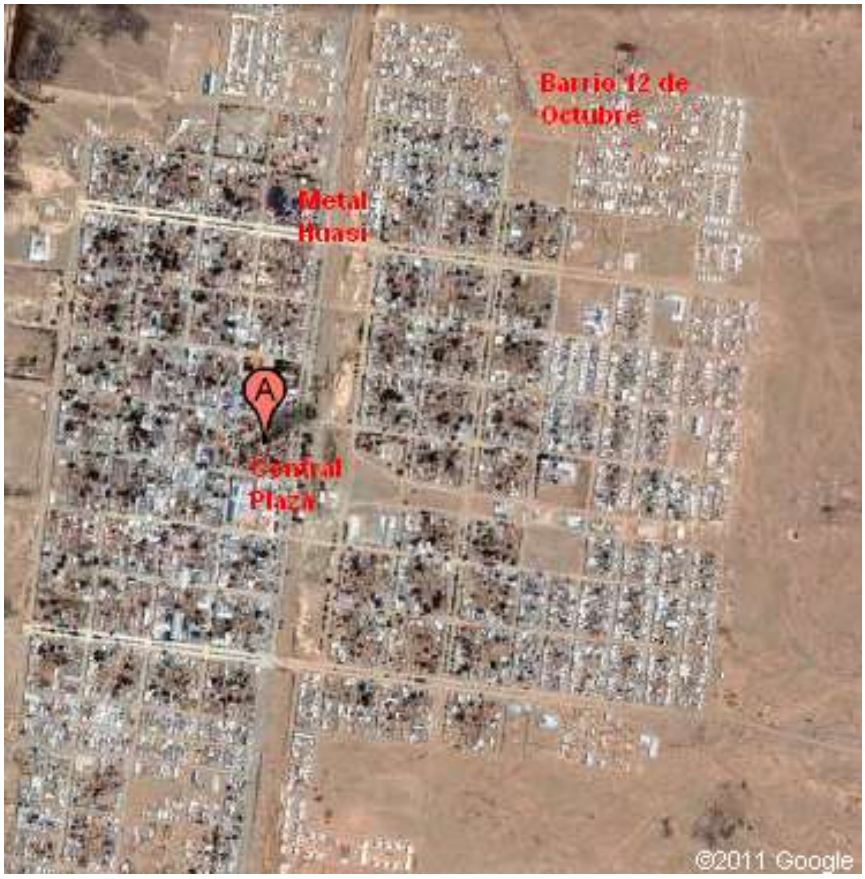

Figure 1: Map of Abra Pampa.

Lead waste has accumulated at the Metal Huasi site (North of the Central Plaza), in the Barrio 12 de Octubre (East of Metal Huasi), and at the Arroyo Tabladitas (not pictured here, but Northeast of the town). (Image courtesy of Google Maps).

Figure 2: Locations of Waste in Relation to Residential Areas

"A" = Central Plaza, and lead waste is outlined in red. The square North of the plaza is where Metal Huasi operated, the irregular shape in the middle is waste in the Barrio 12 de Octubre, and in the upper right-hand corner is the Arroyo Tabladitas, where lead dammed a river. The blue in the lower left-hand corner outlines the town's open-pit landfill. (Image courtesy of Google Maps)

Residents have continually been exposed to contamination in the air, soil, and water supply, both as a result of this waste's exposure to the elements and from pollution released into the air while Metal Huasi was still in operation. Lead commonly enters the body through ingestion and respiration, and contamination is exacerbated, and facilitated by, Abra Pampa's climate. Seasonally heavy rains cause heavy metal toxins to leech into the soil beneath large deposits of metal waste, contaminating the groundwater, and residue from the waste can eventually become ingested if people touch or otherwise come into contact with it. It is important to note that for decades, this waste has been easily

accessible to Abra Pampa residents – many adults recall times when they or their children climbed on and rolled down the pile of waste at Metal Huasi, and the municipality installed goal posts on top of waste in the Barrio 12 de Octubre, which became the "home field" of one of the town's soccer clubs. Additionally, the municipality began selling plots of land to people in the Barrio 12 de Octubre that is adjacent to, and in some cases on top of, lead waste that had accumulated there throughout the late 1990s and early 2000s.

Among the most harmful components of the lead waste that remains are those that are not easily visible, however, and are not confined to piles of metal that accumulated over the years. *Humos blancos* (in English, literally "white smoke") are fine dust-like particles of oxidized lead that accumulate on top of the waste, and are easily blown throughout Abra Pampa on the high plains' characteristically strong winds. These particles, once airborne, are easily breathed in and deposited inside or around houses, in some cases several blocks from sites where heavy metal waste was originally deposited. Additionally, seasonally strong rains both allow for lead to seep into the soil and create runoff that deposits *humos blancos* and other lead particles as rainwater deposits them through neighborhood streets.

As can be seen from the anecdotes that Fernando and other Abra Pampa residents offered (described a few pages prior), when people reflect on their first "intuitions" that Metal Huasi's operations may have been harmful to their health, they do not mention the *humos blancos* or the waste which piled up around town. What they do remember is how suppressive the black clouds of pollution that billowed above town were, and it was around these clouds that residents mobilized in the late 1980s. During this time, dozens of residents rallied around the clouds rose above Metal Huasi, holding town-hall meetings with the mayor and with Metal Huasi owners to demand closure of the plant.

All interviewed residents who were living in Abra Pampa at the time remember a major *corte de ruta* in May of 1986 – some claim it was the town's first – when residents blocked a major highway that divides the town to call attention to the pollution and demand closure of Metal Huasi.

At the end of the same year, health professionals from the provincial capital of Jujuy released the first study on high levels of lead in the blood of children aged six and twelve years old, focusing on the pile of lead in the town center. The study reveals that children living within 200 meters of the Metal Huasi site had blood-lead levels exceeding 20 μg/dL (micrograms per deciliter), twice the amount deemed "acceptable" by international standards.[10] Of 124 six-year-olds sampled, 100 exhibited blood-lead levels between 10 and 50 μg/dL, and of 102 twelve-year-olds sampled, 90 had blood-lead levels ranging from 10-54 μg/dL. The study concludes by advocating for further clinical studies for the diagnosis and treatment of affected children in Abra Pampa, generalizing from its findings that "1,970 children under 15 years of age are exposed to the same risk."[11]

Populations that are most vulnerable to the effects of exposure to lead contamination are children and the malnourished. Once ingested, lead acts similarly to calcium in the human body. It deposits itself and accumulates in bone marrow and is circulated throughout the body in the bloodstream, leading to irreversible organ damage. Common symptoms of lead poisoning include problems with vision, memory loss, behavioral disorders, brain damage, and aches in bones, problems which many Abra Pampa residents claim affect them. The World Health Organization (WHO) has set the

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10 Adrián Canelada, María Teresita Mochietti de Maldana, Sara R. Barberis, María Elena Marcoleri de Olguín, Eduardo Emilio Joaquín, & Pilar Navarro, "Investigación epidemiológica sobre contaminación por plomo en la localidad de Abra Pampa, en relación con una fundición de plomo ubicada en esa ciudad.," *Ministerio de Salud y Bienestar de la Provincia de Jujuy*, 1986.

11 Canelada et al, 35.

international standard for "acceptable" levels of lead in the blood at 10 µg/dL, though recently some members of the medical community have advocated lowering this figure to 5 µg/dL, citing adverse effects on IQ and bone growth at this level.[12] For this reason, published studies on lead contamination in Abra Pampa have focused on blood-lead levels mostly in children aged 6-12 years.

The exact dates for Metal Huasi's closure are disputed in the town, as the plant changed owners several times in the late 1980s and would periodically close and then re-open for a few months at a time (though not as a direct result of residents' protest.) Some residents remember a hailstorm in 1993 that closed Metal Huasi definitively, when wind, rain, and ice caused the roof to cave in and rendered several other pieces of its structure useless. "Then after that, I don't know, nobody talked about Metal Huasi anymore," one of them said. Throughout the 1990s, homes continued to be built toward and around the waste in the Barrio 12 de Octubre. A soccer field was installed on top of that waste, and children played on top of the large pile in the town center.

In the 2000s, the lead waste again became defined as a problem, this time perhaps partially as a result of multiple health studies that found high levels of lead in the blood of children living in Abra Pampa. When residents reflect on lead contamination, they remember a sustained period of protest from about 2004 to 2007, a period of time in which the Toxicology Service of the Provincial Health Ministry and the INQA group of the National University of Jujuy published the findings of their studies, and in which dozens of families became parties to a class-action suit against the municipality through the law firm of provincial political representative Riad Quintar, who hired a private team

12 "Impact of Lead-Contaminated Soil on Public Health," *Centers for Disease Control and Prevention,* 1982; Todd A. Jusko, Charles R. Henderson, Jr., Bruce Lanphear, Deborah A. Cory-Slechta, Patrick J. Parsons, and Richard I. Canfield, "Blood Lead Concentrations < 10 µg/dL and Child Intelligence at 6 years of age," *Environmental Health Perspectives* 116, No. 2 (2008).

of doctors to take blood samples from residents (largely those living in the Barrio 12 de Octubre) to determine their degree of lead poisoning. Interviewed residents remember the events differently, but many attribute growth in awareness of and concern over the health effects of lead *waste*, rather than Metal Huasi's operations, to "*lo de los estudios*" -- a commonly-used phrase that vaguely refers to this time period in which various studies were conducted, without naming a specific study or specific year:

> "For a while, nobody talked about lead. Then came *lo de los estudios*, and suddenly everybody was talking about lead again."
>
> "I didn't know that pile was harmful until *lo de los estudios*. Let's see, what year did they start? 2000? 2005? No, 2003, I think."
>
> "In 2005 we started with *lo de los estudios*, and everyone was involved again. Now we know life here is dangerous."

The first of the studies that was published during this time was conducted in 2004 and published in 2006. The Toxicology Service of the Province of Jujuy took blood samples from a total of 144 children aged 5-12 years, who lived within concentric distances of the Metal Huasi site near the town center, and concluded that "40 percent of the blood-lead levels were higher than those recommended by the Centers for Disease Control and Prevention (CDC) for the child population, and therefore those children run a higher risk of suffering different types of disabilities."[13] The average blood-lead level of this group of children was 33.2 µg/dL, slightly higher than three times that deemed "acceptable", with a range of 18.4 µg/dL to 52.7 µg/dL, a point at which severe problems with cognitive and physical development are apparent.

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13 Sara Barberis, Adriana Piñeiro, and Clara Magdalena López. "Estudio sobre contaminación ambiental por plomo en niños de la localidad de Abra Pampa (Jujuy-Argentina)." Ministerio de Bienestar Social de la Provincia de Jujuy, 2006. 6. Original: "El 40% de los valores de PbS realizados estuvieron por encima de los recomendados por el CDC para la población infantil y por ende esos niños presentan un alto riesgo de sufrir distintos tipos de discapacidades."

The second major health study to appear during this time was the notorious INQA study, which was conducted in 2006 and whose results were published in 2007. This study revealed that an estimated 80 percent of 234 children living within 500 meters of Metal Huasi had levels of lead in their blood higher than 5 µg/dL,[14] which, although lower than the "traditional" standard of 10 µg/dL, is a point at which many in the medical community agree adverse psychological and physical effects begin to appear. This value has been contested in subsequent discussions with government officials working in the province of Jujuy, but the INQA group affirmed in interviews in June of 2010 that several countries have already lowered their standard for measuring harmful amounts of lead in the blood to 5 µg/dL, and wanted to follow that example.

In addition to calling attention to high quantities of lead in the blood of children living near Metal Huasi, the INQA group also brought higher attention to the reasons *why* lead continued to be a problem in Abra Pampa by emphasizing the idea of the "bioavailability" of lead in Metal Huasi waste. Bioavailability refers to the amount of lead that the human body can absorb in a given physical quantity, which in this case largely refers to *humos blancos* that can be breathed in or ingested as a result of contact with things that have come into contact with lead particles that have been blown or otherwise deposited around town. The INQA group emphasized in its report and stressed in several "follow-up" meetings with Abra Pampa residents that children in particular run a higher risk of exposure to lead poisoning because of their tendency to put objects in their mouths, including dirt that may be contaminated.

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[14] 5 ug/dL, the point at which many in the medical community believe adverse mental health effects are visible. "Evaluación del riesgo químico por metales tóxicos en Abra Pampa, asignando magnitudes y probabilidades de efecto adversos de la contaminación en el ambiente y la población infantile expuesta," Grupo de Investigación Química Aplicada, Universidad Nacional de Jujuy. 2007.

In the time immediately following the publication of the INQA report, residents remember a "peak" of public protest around the issue. In July of 2007, dozens of residents took part in a march from Abra Pampa to provincial capital San Salvador de Jujuy to call attention to the issue of lead poisoning, couching it in a general frame of social exclusion of Kolla communities. Many residents also remember the priest of the local Catholic church, Padre Jesús Olmedo, leading a series of protests on governmental inaction on the issue of lead contamination. In one of these protests, he tied himself to the pile of lead in the town center in an act of symbolic "crucifixion", and others who had taken part of these protests painted slogans such as "Murderers" and "This is killing our sons and daughters" on the smelter's walls.

During this time, Abra Pampa began to appear in national media as well. In September of 2007, an article in *Clarín*, one of Argentina's major daily newspapers, published a subsequently widely-referenced article affirming in its headline that "In Abra Pampa the majority of children have lead in the blood", citing the INQA report as its basis.[15] A one-minute short film titled "Invisibles" was featured as part of the public service announcement series "Un minuto por mis derechos" ("One minute for my rights"), in which a child's voice and drawings describe the story of a girl who faints in school, then learns that lead in her town had been there since long before she was born. It references the INQA study's findings that 81% of children like her had high levels of lead in their blood.[16]

It is important to note that all of the publicized studies from 1986, 2004, and 2006 focus on Metal Huasi – making it and its adjacent towering pile of lead a photo-op of

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15 Sibila Camps, "En Abra Pampa la mayoría de los chicos tienen plomo en la sangre," *Clarín*, 2 September 2007, http://edant.clarin.com/diario/2007/09/02/sociedad/s-04215.htm.

16 "Invisibles," *Un Minuto Por Mis Derechos*, 2008, http://www.youtube.com/watch?v=jJ6cFuqIuGQ.

sorts for the question of lead contamination in Abra Pampa. This pile was haphazardly removed in late 2008 and 2009, however, and all that remains at the eerie Metal Huasi site are rusty, broken pieces of its original structure that have largely been left untouched since it closed and which clang together on Abra Pampa's characteristically windy afternoons. Although the strikingly visual pile of lead waste is gone, it is equally important to highlight that contamination itself is not – a significant, ground-level spread of lead waste remains untouched in the Barrio 12 de Octubre, and *humos blancos* cover the ground at the Metal Huasi site and at the Arroyo Tabladitas.

Ostensibly, lead that has been removed so far was done as part of a remediation plan that the federal government of Argentina drafted in November of 2007. Remediation was to be carried out using part of a loan from the Inter-American Development Bank (IDB), earmarked for promoting clean, sustainable practices in the mining sector. The IDB program is divided into two subprograms – "Promotion of Clean Production" and "Environmental Development in Mining", and Abra Pampa's remediation project falls into the second "subprogram". Approximately US$14 million are allocated for "supporting environmental management in degraded mining areas" in Argentina under this subprogram, which is to be supervised and carried out by the federal mining secretariat and provincial-level officials in a division of the mining secretariat known as GEAMIN (*Gestión Ambiental Minera*; Environmental Development in Mining).[17] GEAMIN was created to promote sustainable and responsible mining practices in Argentina. To date, however, it is unclear to what extent GEAMIN, or any public institution, has proactively overseen any environmental remediation plan in Abra Pampa. According to the original remediation plan (and several interviews with

17 "Propuesta de Prestamo, Programa de Gestión Ambiental para una Producción Sustentable en el Sector Productivo (AR-L1026)," *Banco Interamericano de Desarrollo, Argentina.* 2007.

members of the federal and provincial mining secretariats) all of the areas of lead waste would be fenced off, lead would be removed, and other incidental cleanup operations – such as washing the exterior of buildings to remove lead dust – would be completed by the end of 2010.

While so far the 15,000-ton pile of lead has been removed from the town center, a wire fence has been placed around lead waste in the Barrio 12 de Octubre, and waste has been taken from where it walled the Arroyo Tabladitas, no other concrete steps have been taken toward remediation since early 2009. It should be emphasized that even those steps toward remediation that *have* taken place so far have been under the auspices of the semi-private (and totally intransparent) *Cámara Minera* ("Chamber of Mining") of the province of Jujuy, which is comprised of representatives of various mining companies that operate in the province. The Chamber of Mining took waste away hastily, without first consulting the community or warning neighbors of precautions to be taken while waste was being removed from the town center, and it may have actually exacerbated contamination in the area surrounding the smelter by not following environmental precautions. Additionally, there is visual evidence that waste that was bagged and then removed from the Arroyo Tabladitas was also done haphazardly, as several shreds of the bags and *humos blancos* still cover parts of the ground at this site, suggesting that some of them had ripped in transit and then not cleaned up. Waste that has been taken away to date has been stored in the nearby Mina Aguilar, which is owned by the Swiss mining company Glencore and operates a functioning lead smelter in Palpalá, roughly 250 kilometers from Abra Pampa.

The following pictures show what the Metal Huasi site looked like before and after waste was removed in late 2008 and early 2009. The photo on the left shows Metal Huasi in August of 2008 (photo courtesy of Matthew Wooten). The photo on the right

shows Metal Huasi in April of 2009, three months after the 15,000-ton pile of lead was removed.

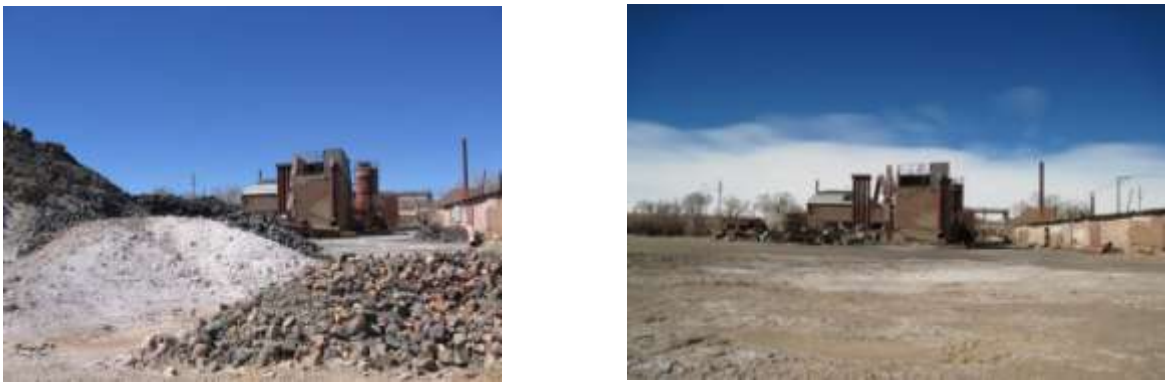

Figure 3: Metal Huasi Before and After Remediation

The following photos of the Arroyo Tabladitas site show what has been left after lead that had dammed a river was bagged up and taken away in late 2008. The photo on the left shows a shred of one of the bags that was left behind, and the photo on the right shows a resident standing on a ramp that had been used to load the bags on to a truck that was also left at the site.

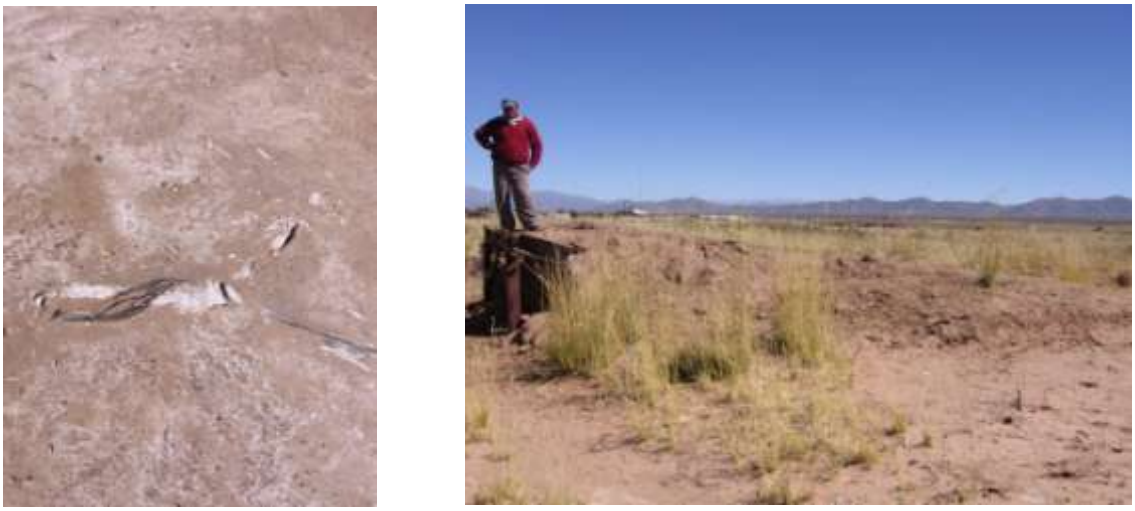

Figure 4: *Humos blancos* and parts of machinery left at Arroyo Tabladitas.

Abra Pampa residents were led to believe that environmental remediation would have been completed by the end of 2010, and that it would entail evaluation of the extent and gravity of lead contamination for subsequent removal of waste from the three major sites where it was left after Metal Huasi closed and from any other area deemed "contaminated."

Figure 5: Humos blancos at Metal Huasi

Humos blancos cover the ground at Metal Huasi, spilling beneath the fence that has been constructed around its perimeter

Waste in the Barrio 12 de Octubre, which is adjacent to and in some cases directly beneath several homes that have been built in Abra Pampa in the last decade, is still very much a part of residents' daily interactions with their environment. Although the provincial government installed a chain-link fence around this football field-sized spread of ground-level waste as part of an initial phase in the remediation process in 2007, it has

not limited residents' exposure to toxins it contains. The fence has been cut in several places so that residents can walk through the waste to get from one side of the neighborhood to the other, and the municipal government has installed two goal posts for a soccer field on top of this waste. The fence does little to keep *humos blancos* from spreading throughout Abra Pampa by wind or rain runoff. In fact, *humos blancos* are still prevalent at the Metal Huasi and Arroyo Tabladitas sites, and are believed to be among the most dangerous particles from the Metal Huasi waste. While the bulk of the solid waste appears to be gone, the ground is still covered with a layer of lead dust that can easily be breathed in or deposited around town.

Figure 6: Lead waste in the Barrio 12 de Octubre

The remediation process, initially hailed in the local press as a response to a "historic request" in 2008,[18] is simultaneously a source of hope, anxiety, disdain, and

18 "Terminó traslado de pasivo ambiental de Metal Huasi," *El Tribuno de Jujuy*, 31 Dec. 2008.

confusion on actual environmental risk that lead waste poses. Governmental agencies charged with managing lead waste removal in Abra Pampa have provided little substantive information on progress of remediation since the pile of waste was removed from the town center, and local media coverage often diverts attention away from public criticism of the plan, sometimes by explicitly discrediting independent investigation on the effects of lead contamination.[19]

In January of 2010, the provincial government hired CESEL S.A., a private Peruvian engineering firm, to act as a consultant for carrying out the rest of the remediation plan. A team of scientists from CESEL worked in Abra Pampa from February until April of 2010, taking samples of soil, water, and air to measure amounts of potential toxins left in them. The company has operated under the pretext of transparency and citizen participation, and created a Web site that ostensibly promotes "dialogue and establishes a standing channel of communication."[20] Few people in Abra Pampa, however, are aware of the site's existence, and one interviewed woman who had seen it noted the abundance of information that is more explicit about what *will* or *should* happen than on results of studies that have been conducted. "*Hablan mucho sin decir nada*," she remarked, encapsulating a theme heard in many discussions with Abra Pampa residents. "They talk a lot without saying anything. I thought they started [remediation] when they took the mountain away. Now they say remediation is only 'about to start'. When are they going to tell us if we're contaminated? When will they take it *all* away?"

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19 See "Bellone se reunió con representantes de la Universidad de Texas por contaminación."

20 "Bienvenida," Abra Pampa Remedia, *CESEL Ingenieros, SA.* http://www.abrapamparemedia.com.

Figure 7: 12 de Octubre Waste

Donkeys graze on top of Metal Huasi waste in Barrio 12 de Octubre.

Figure 8: 12 de Octubre Fence

Residents have cut the fence around 12 de Octubre waste, using it as a shortcut across the neighborhood.

When analyzing toxic uncertainty in Abra Pampa, it is important to highlight that its emergence seems to be linked to the multiple interventions of outsiders, and there did not appear to be as much "confusion" or knowledge of lead until around the time that that plant closed and outside actors began to disclose health study results and plan remediation. This is important to note because literature on power and uncertainty in contaminated environments, the topic of the next chapter, names the State as an important agent in defining or negating contamination as a problem. In Abra Pampa, the interactive, constructed nature of uncertainty and confusion is clear, due to the timing of

the proliferation of multiple discourses on contamination. The resulting struggle to define the extent to which lead is or is not a serious problem, as well as the likelihood that it will be cleaned up and affected residents will be treated, reveals underlying political power dimensions that both create and capitalize on uncertainty.

CHAPTER 2: POWER AND UNCERTAINTY: THEORETICAL APPROACHES

The case of Abra Pampa can be understood as a reflection of historical power imbalances and inequality in the region, and current discourse of residents and State officials[21] on lead often reflects these inequities. Given its historical context of marginalization, ties with the powerful mining industry, and long silence on the issue of lead in the town, analysis of the case of Abra Pampa is couched in sociological literature on the exercise of power of dominant political actors and on two ethnographic studies of "toxic uncertainty" that analyze how residents of highly-contaminated areas understand and discuss their environment. It draws heavily on Auyero and Swistun's definition of toxic uncertainty as "a way of experiencing toxic suffering that is shaped by…the interacting 'invisible elbows'…of external power forces and of everyday routine power struggles."[22] Since this case study provides an overview of how (and whether) dominant political institutions and Abra Pampa residents define lead as an issue, this chapter will provide a brief literature review of the major questions posed in literature on power (particularly as it relates to agenda-setting) and on environmental suffering itself.

Analysis of the intersections of State and community-level discourse on remediation grapples with questions put forth in conceptualizations of power by Steven Lukes, Matthew Crenson, and John Gaventa. These authors have conceptualized the "three-dimensional" aspects of power (outlined in Lukes' *Power: A Radical View*), in particular to explain how it is manifested subtly in situations of "latent conflict." Lukes

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21 In this case, "State officials" generally refers to government officials in the mining and health sectors in the government of the province of Jujuy, as well as the municipality of Abra Pampa, who ostensibly manage the health and environmental planning in Abra Pampa. Although we will see in the following chapter that "State" discourse is not monolithic, these sectors have been chosen for analysis for their agenda-setting powers.

22 Auyero and Swistun, p. 6.

defines a "three-dimensional view" of power as one that considers "the many ways in which *potential issues* are kept out of politics, whether through the operation of social forces and institutional practices or through individuals' decisions,"[23] as opposed to views of power which hinge mostly on behavioral explanations for observable conflict. The third-dimensional view of power, according to Lukes, is based on "latent conflict," understood as a "contradiction between the interests of those exercising power and the *real interests* of those they exclude."[24] In the third-dimensional view, power is not only something that dominant actors exercise to coerce people to act a certain way, but that operates effectively through the "(attempted or successful) securing of people's compliance by overcoming or averting their opposition."[25] In the case of Abra Pampa, this contradiction and exclusion of interests is reflected in mining interests' denial of health consequences of extractive industry activity.

In their respective studies on air pollution in suburban Chicago and on poverty and mining in Appalachia, Crenson and Gaventa speak to Lukes' "third-dimensional" view of power in their analyses of how it is manifested in politics of health and environmental hazards. Crenson's work parts from the basic question of why some cities seem to exhibit "less concern" over air pollution than others, and his explanation lies in conceptualizing "issueness." As the name implies, issueness is a concept that explains the extent to which a topic becomes an "issue," something that has been placed on a political agenda and which is "ripe for authoritative resolution."[26] The issueness of contamination, Crenson argues, is related to the extent to which leaders take public

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23 Steven Lukes, *Power: A Radical View* New York: Palgrave Macmillan, 2005), 28.

24 Lukes, 28.

25 Lukes, 34.

26 Matthew A. Crenson, *The Un-Politics of Air Pollution: A Study of Non-Decisionmaking in the Cities* (Baltimore: The Johns Hopkins Press, 1971), 29.

positions on air pollution. Presumably, "the activities of these [formal leaders] and the organizations that they head will reflect positiontaking in the community at large."[27] In other words, the more a topic is discussed publicly in the political sphere, the more a community may consider it an "issue" at the grassroots level.

Gaventa takes a related position in his study of inequality and injustice in a mining town near the Cumberland Gap, in which he asks "not why rebellion occurs in a 'democracy' but why, in the face of massive inequalities, it does not."[28] As in Abra Pampa and Flammable, the community in question in Gaventa's work is both conscious of and, in many cases, upset about injustices they believe they face. However, the existence of these grievances – though widespread – does not necessarily translate into widespread collective action. Gaventa uses Lukes' three-dimensional view to provide potential explanations for this phenomenon: in the second-dimensional view, he says, "expression of politically latent grievances is found to be blocked by institutional practices" such as elite control and exclusion of the region in question.[29] Perhaps a more nuanced understanding of the exercise of power in this community, Gaventa argues, is offered in the third-dimensional approach: that "power serves to maintain prevailing order of inequality not only through institutional barriers but also through the shaping of beliefs about the order's legitimacy or immutability."[30] In this case, not only the actions of elite institutions themselves, but the perception of these institutions "from below" is what perpetuates social domination.

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27 Crenson, 95.

28 John Gaventa, *Power and Powerlessness: Quiescence and Rebellion in an Appalachian Valley* (Urbana: University of Illinois Press, 1980), vi.

29 Gaventa, 41.

30 Gaventa, 42.

These three perspectives are informative to the case study of Abra Pampa because, in addition to examining the ways in which state officials and the media have managed the "issueness" of lead contamination and their own authority on it, it also posits that residents' own beliefs about contamination reflect, to varying degrees, the ways in which outsiders have managed and defined the issue. In Abra Pampa, an apparently objective health threat (lead contamination) has historically been a "latent concern," and state impermeability and contradiction on the issue have shaped both public opinion on the extent and gravity of the contamination and residents' own beliefs about the possibilities for the State to effect change. To varying degrees, these perspectives point to the recognition or misrecognition of the State's framing of issues as crucial to citizen consciousness of the dangers associated with environmental contamination, and whether this consciousness will translate to "issueness" at the grassroots level.

Ethnographic accounts of "toxic uncertainty" in Abra Pampa reveal the contradictory ways in which residents engage with outsiders' definitions of lead contamination, as well as divisions among residents on whether lead contamination is an "issue" or an actionable grievance. To answer some of the questions posed in the literature on power and issueness, namely how residents' perceptions of dominant institutions shape their "compliance" with definitions of risk, whether public political discourse shapes these definitions, and whether an apparent lack of protest on an issue correlates with a lack of political discourse, it is necessary to examine how people engage with outsider/dominant actor frames, interventions, and inaction on lead contamination.

The concept of toxic uncertainty, as Auyero and Swistun define it, is most applicable to the case of Abra Pampa for its emphasis on the construction of residents' contradictory understandings of their environment vis-à-vis interactions with dominant

institutions and with each other. As in Flammable, there is no common agreement among Abra Pampa residents on the extent and gravity of contamination, but often the reasons for these disagreements are the result of contradictory information and even blanket denial of problems associated with lead that come from outside actors (particularly government institutions). Auyero and Swistun name "widespread uncertainty" in Flammable as a "product of a labor of confusion performed, not necessarily intentionally and less so in a coordinated way, by a series of interconnected actors."[31] These actors' discourses reify, deny, and complicate intuitions and beliefs on the effects and sources of contamination, contributing to an overall lack of a shared understanding of contamination in the community.

Auyero and Swistun describe four manifestations of "toxic uncertainty" in Flammable, in which residents' testimonies exhibit contradictions on specific sources, effects, and seriousness of environmental contamination. These manifestations – misinformation, shifted responsibility, denial, and blindness[32] -- are partially responsible for the "recursive relationship" between collective understandings and joint action in highly contaminated communities.[33] In this case, Auyero and Swistun argue, tenuous collective understandings may explain a lack of joint action. These understandings are, in turn, socially produced – a result of interactions with multiple discourses and ways of framing the issue of contamination.

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31 Auyero and Swistun, 94.

32 Auyero and Swistun, 91.
Misinformation: "as when residents assume that lead contamination is clustered in the poorest section of the shantytown or when they assert that 'lead is produced by the coal-processing plant.'"
Shifted responsibility: "as when respondents argue that poor parenting is responsible for high levels of lead contamination."
Denial: "as when residents actually challenge existing data showing that environmental pollution has reached toxic levels or when they use their own healthy bodies to deny serious contamination."
Blindness: "as when neighbors ignore their own risk perpetuating land-filling practices."

33 Auyero and Swistun, 130-131.

The present study draws heavily on this notion by pointing to the government of Jujuy and the municipality of Abra Pampa's denial, the overall political "nonissueness" of lead contamination, and the confused "official stance" toward lead contamination in Abra Pampa through discourse on remediation. Officials working in development and health policy assure that they are making a concerted effort to deal with lead contamination while simultaneously downplaying or negating risks that other independent "outside actors" have professed. Their attempted monopoly on "legitimate" (though contradictory) knowledge feeds into Abra Pampa residents' own uncertainties toward lead contamination. Auyero and Swistun make a point in their study of Flammable that is equally applicable in Abra Pampa. Part of the reason why State discourse perpetuates so much confusion is that contamination is often treated "as a problem whose solution is always someone else's responsibility."[34] This, combined with the fact that the fact that the State is "*simultaneously* confused, neglectful, and bold" leads to uncertainty in Flammable itself.[35]

Auyero and Swistun's notes on time and waiting in Flammable are also applicable to the case of Abra Pampa, and will be taken up here. Auyero and Swistun note that pollution in Flammable has taken on a "slow incubation processs" – in that it was not "abruptly imposed" on the neighborhood[36] -- which affects how people view the sources and effects of contamination. Without a concrete reference point for how and when contamination began (unlike cases in which explosions, leaks, and other industrial or natural disasters are framed as the cause for grievances), residents may not be as likely to clearly define it as hazardous or life-threatening. As is seen a bit in the first chapter and

34 Auyero and Swistun, 100.
35 Auyero and Swistun, 101.
36 Auyero and Swistun, 60.

as will be explored in the second chapter, a similar "slow incubation process" has taken place with Metal Huasi's lead waste. For decades, Abra Pampa residents have simply coexisted with the waste, and it has long been a part of the town's physical landscape before it was described as an objective health threat. This has likely contributed to some residents' skepticism of its actual risk, and presents challenges for those hoping to organize collectively on the harm that lead ostensibly causes.

The second temporal component of Auyero and Swistun's work – that taken up with its engagement with the concept of waiting – is also seen in Abra Pampa and presents challenges for the framing of lead waste as an immediate health threat. In Auyero and Swistun's case study, Flammable residents are said to "live in a time oriented *to and by* others" – legal appointments and health tests are delayed, they await an "always imminent" relocation – "and while they wait, the doubts about what others are presumably doing on their behalf grow. These doubts eventually become self-doubts about their own (individual and collective) power."[37] In their subjection of time to others, "neighbors end up relying for solutions on the same agents who are responsible for their suffering."[38] Abra Pampa residents have also been subject to waiting for a solution – in the form of environmental remediation – from the same entities that are responsible for industrial contamination there in the first place – the mining sector. However, in Abra Pampa, resistance to denial of contamination (though not widespread) constantly criticizes these institutions for their political inaction, and actively discredits them for such.

In many ways, the case of Abra Pampa almost synonymous with that of Flammable – in that confusion and uncertainty are a result of contradictory discourses

37 Auyero and Swistun, 129.
38 Auyero and Swistun, 136.

and interventions (mostly on the part of the State), that there is no widespread understanding of the extent and gravity of lead contamination, and that until relatively recently lead contamination has not been defined as an "issue". However, several empirical differences emerge, briefly discussed here and in greater depth in the conclusion, that present additional consideration for some of the conclusions that Auyero and Swistun draw on the formulation of collective understandings of contamination, as well as their potential links to collective action. The first is that in Abra Pampa, the source of contamination is known, and acknowledged as the lead present in the heavy metal waste that Metal Huasi left behind. In Flammable, Auyero and Swistun note that, in their reconstructions of the history of the shantytown, residents display a "lack of certainty about the origins of pollution."[39] In other words, part of the toxic uncertainty displayed in Flammable stems from the belief that multiple toxins are affecting residents' livelihoods, and that they started doing so at an indeterminable period in the shantytown's history. Auyero and Swistun's interviews with Flammable residents reflect a belief that the soil in the town was filled with "'all kinds of poisons'",[40] making it more difficult to assign blame for contamination and to determine risk from exposure to toxins. Though lead is perhaps most commonly blamed as the culprit for many health problems in Abra Pampa among critics, most of the uncertainty lies over the actual extent and gravity of the contamination there.

A second difference between Flammable and Abra Pampa is the fact that, unlike in Flammable, in Abra Pampa the industrial source of contamination is no longer in operation. While some mention of opposition to Metal Huasi's pollution while it was still operating has been made here, the main focus of this case study of Abra Pampa is on

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39 Ibid, p. 56.
40 Ibid, p. 55.

how residents frame the question of waste that has accumulated since the 1940s and has been left mostly untouched since it closed. Auyero and Swistun highlight the fact that people are not necessarily thinking about the smaller-scale accidents and miscalculations in the petrochemical compound that may still expose them to daily hazards. There is a general belief that "true" harm would be something of the magnitude of an explosion or major leak. Metal Huasi is no longer operating, and so the potential for disaster is not even a possibility in residents' framing of the issue of contamination and risk, but the question of perceptions on which parts of lead waste are most harmful (at various sites) despite some evidence to the contrary brings up an analogous point. Another major consideration in this empirical difference between Flammable and Abra Pampa is the extent to which criticism and collective mobilization can be directed toward *stopping* an industrial process already underway. Unlike Flammable, in Abra Pampa that is not a possibility.

A third difference, noted earlier in the introduction, is that collective mobilization actually *has* occurred in Abra Pampa (and mobilization is arguably still underway, though not necessarily in a coordinated fashion and as part of what residents call an "invisible" struggle). Though collective mobilization has been sporadic and has notably declined since initiation of the problematic remediation plan in 2007, I hesitate to label Abra Pampa as a similar "negative case" of a social movement to emerge or its residents as quiescent, since for some lead is still very much an issue. The original intention of this research was to explore whether the case of Abra Pampa was analogous to that of Flammable regarding the relationship between knowledge and action, but due to the challenges present in short-term research and my allegiances to some of the protagonists of an "invisible struggle" against contamination (presented in Chapter Six), I hesitate to make the same link between toxic uncertainty, submission, and collective inaction here.

Another application of Auyero and Swistun's case study of Flammable can be found in sociologist Lorenzo Natali's analysis of "green criminology" in a similarly highly polluted community in Huelva, Spain. In this study, Natali is skeptical of the extent to which communities facing environmental contamination will (or are able to) frame actionable grievances against the State. Natali's ethnography parts from a definition of "environmental crime" that fits under "those dimensions of damage, injustice and social harm often neglected by criminal law and by the criminal justice system,"[41] despite empirical evidence of said damage, injustice, or harm that could be used as the basis of a collective understanding of harm in communities facing environmental contamination. Natali notes that part of the reason why "environmental crime" is such an elusive frame, particularly for the basis of rights consciousness and mobilization in contaminated communities, is that government and business elites often employ "greenwashing": "a communication strategy often used by corporations to render an activity that is inevitably dangerous for both environment and people more acceptable."[42] In Huelva, as in Flammable and Abra Pampa, "greenwashing" is linked to profitable industrial and extractive activity, respectively, in which emphasis on the benefits the State is said to derive from said activity downplays its negative environmental consequences in affected communities.

In addition to the interventions and "counterframes" from those who seek to "greenwash" contamination, Natali notes that Huelva residents' own discourse on contamination reveals widespread ambivalence and disagreement – or "toxic uncertainty" -- that may also preclude a popular notion of environmental injustice in the community.

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41 Lorenzo Natali, "The big grey elephants in the backyard of Huelva, Spain," in *Global Environmental Harm: Criminological Experiences*. Ed. Rob White. (Devon, UK: Willan Publishing, 2010), 195.
42 Natali, 200.

Natali's analysis of the normalization of contamination in Huelva is similar to (and draws upon) Auyero and Swistun's analysis of Flammable, but his specific discussion of justice centers on instances of personal injustices that residents note. Natali posits that while these instances do not constitute a collective "metaphysical or transcendental concept of justice capable of generating consensus as to what is right and what is wrong" vis-à-vis causes and agents responsible for contamination,[43] differing forms of environmental victimization might nonetheless eventually build a more collective claim of injustice.

Natali's analysis of Huelva is conceptually and theoretically informative to the case study of Abra Pampa not only for his emphasis of individualized over collective frames of injustice (which is also seen in Abra Pampa), but also for his application of the idea of "greenwashing" and how uncertainty and confusion "will favour those who have the power to define the different objects of contention."[44] A major difference, however, like the case of Flammable, is the extent to which a grievance is defined as targeted against a specific actor. In Huelva, Natali notes the impossibility of establishing "responsibilities in cause-effect terms"[45] – due at least partially to the fact that the sources of contamination are multiple and more easily passed off as "someone else's responsibility."

Fundamentally, the present case study of Abra Pampa adds to a growing body of literature on toxic uncertainty – such as that of Auyero and Swistun's analysis of Flammable and Natali's analysis of Huelva – by revealing the processes by which residents of contaminated communities make sense of multiple discourses on industrial pollution, and how these discourses often reflect structural inequalities and biases that

43 Natali, 205.
44 Natali, 202.
45 Natali, 199.

favor State institutions. Where it differs, however, is in naming the extent to which uncertainty does or does not relate to collective mobilization, and on how residents frame grievances when they know who or what is "responsible" for their suffering. While the last chapter and the conclusion will take up the issue of resistance and criticism as it exists in Abra Pampa, the majority of this case study instead focuses on how lead has – and has not – been understood as an "issue".

A reviewer of an early draft of this case study told me that, although it provided a good overview of lead contamination in Abra Pampa, it was not clear from what I had written whether Abra Pampa residents currently consider lead to be a "problem". Indeed, the case of Abra Pampa complicates the questions put forth in literature on power and toxic uncertainty because lead contamination now appears simultaneously as an issue *and* a "nonissue", given the fact that a minority of residents are still publicly vocal in their criticism of government inaction but some of them note an overall "marked indifference" among their neighbors, as one of them put it, now that remediation is ostensibly under way. The "issueness" of lead contamination in Abra Pampa appears to wax and wane in accordance with the interventions of outside actors and the State, and shared understandings of the imminence of the threat that lead contamination poses also seem to be defined according to how physically evident the contamination is (i.e., smoke emanating from Metal Huasi, the existence of a large pile of lead in the town center). Thus, the interaction of State frames that attempt to downplay or discredit risk associated with lead contamination with residents' own understandings of contamination is partially explained in Lukes, Crenson, Gaventa, Auyero and Swistun, and Natali, but empirical differences in the history of the "issueness" of contamination in Abra Pampa raises questions on the relationship of dominant institutions and their perceived "legitimacy" at

the grassroots level, as well as the relationship of uncertainty to an apparent lack of collective mobilization.

The "snapshots" of understandings of and discourse on contamination that follow are meant to show how lead contamination is understood in Abra Pampa from various angles: how outsiders manage information and the production of knowledge on the issue, how outsider interventions inform residents' understandings of the effects of contamination, how Abra Pampa residents' own discourses on suffering reflect inequality in the town, and how and why some residents *do* consider lead contamination to be a serious political issue. Since it is difficult to say whether uncertainty has, in fact, precluded collective mobilization on the issue (due to its periodic resurgence), these snapshots instead seek to shed light on how, when, and why lead is defined as an "issue", and under what circumstances it is most commonly-understood as an actionable grievance.

CHAPTER 3: "DOUBLE DISCOURSE:" STATE RECOGNITION AND DENIAL OF CONTAMINATION

"There is a problem with those results. We have a problem that is smaller in magnitude than what people think," an official from the Environmental Development ministry of the Province of Jujuy told me, after claiming that the results of a 2006 study by INQA of the University of Jujuy were "scientifically invalid." The INQA study, which concluded that 81% of sampled children living within 500 meters of Metal Huasi had levels of lead in their blood that exceeded 5 μg/dL, has become a major point of contention in discourse on the extent and gravity of contamination in Abra Pampa. Immediately in the wake of its publication, it served as a rallying point for concerned Abra Pampa residents, and has since become the focus of a concerted effort to downplay its damning results. The tension over the INQA study serves as a microcosm of State discourse on contamination in Abra Pampa: in the wake of recent attention in the local and national media, particularly since the remediation contract was signed in 2007, the provincial and municipal governments have sent mixed messages on the severity of lead contamination, as well as on their responsibility to provide remediation in Abra Pampa.

Since remediation began, there has been simultaneous recognition and denial of the possibility that lead waste in Abra Pampa is a serious cause for concern. Additionally, the provincial and municipal governments show a simultaneous reliance upon and rejection of scientific material to diagnose the degree of lead contamination in the town and design "next steps" in the remediation process. These confusing messages, laid over an already uncertain attitude toward lead contamination stemming from Metal Huasi activities in Abra Pampa, make rhetorical promises that a solution is coming, but at the same time deny that the problem exists in the first place. This chapter argues that

mixed messages from branches of the government concerned with development and health policy, and various agencies' attempted monopoly on "legitimate" information on lead contamination in Abra Pampa, exhibit elements of Lukes, Gaventa, and Crenson's conceptualizations of power and "issueness".

Before proceeding to outline how State management of information is manipulated and managed to downplay risks and attempts to keep lead from becoming an "issue", it should be clarified which branches of the State have most problematically done so. Various branches of the government at all levels – federal, provincial, and municipal – have intervened on the question of Abra Pampa, and not all with the same exhibition of power and agenda-setting that contradicts residents' beliefs on the levels of risks they face. Curiously, the 1986 and 2004 studies were conducted by health professionals working in the Ministry of Health and the "Toxicology Service" of the province of Jujuy --- some of the very agencies that today actively downplay the magnitude of the problems associated with lead waste in Abra Pampa. Even the INQA group's 2006 study was technically conducted by a State institution – being a branch of a public university in Jujuy – and in cooperation with former mayor Hernán Zerpa in Abra Pampa, who is widely-credited to have been much more critical of contamination in the town than current mayor Ariel Machaca, who took office in 2008.

Additionally, the federal and provincial Ombudsmen have intervened on the question of lead contamination in Abra Pampa, collecting medical and scientific documentation on the effects of contamination, issuing resolutions to urge cleanup and treatment of individuals believed to be affected by lead poisoning, and sending requests for information from federal and provincial-level officials charged with environmental remediation in the town. Although many of these requests and resolutions have gone unanswered, as everything now "depends on the municipality to enact them", as one

representative from the Ombudsman office of Jujuy told me, they represent important landmarks in official recognition of the gravity of the problem of lead contamination in Jujuy.

Part of the confusion on the extent to which contamination exists in Abra Pampa stems from the fact that the effects of lead contamination are notoriously difficult to measure, and power elites in the lead industry tend to capitalize on this fact to discredit public concern over uses of the metal. Oftentimes, as Gerald Markowitz and David Rosner note in their criticism of the uses of science to deny industrial pollution, it is "difficult to show to the satisfaction of government regulators a direct correlation between particular chemicals…and the specific illnesses in clusters of people in particular communities."[46] They argue that "conservative analysts have used epidemiological studies to raise doubts about environmentalists' and community residents' fear of industrial pollution" and "rely on a view of science, and of epidemiology in particular, that is overwhelmingly reductionist. It sees the world in mechanistic terms that cannot account for the complexity of interactions and social relationships that determine outcomes in complex systems."[47]

A particularly slippery aspect of measuring lead contamination, which State officials in the province of Jujuy have capitalized upon to discredit some independent investigation on the issue of lead contamination in Abra Pampa, concerns the element's "bioavailability", or the ability of lead to enter "various receiving compartments of the body through inhalation and ingestion, and the subsequent absorption of some fraction of

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46 Gerald Markowitz and David Rosner, *Deceit and Denial: The Deadly Politics of Industrial Pollution*. (Berkeley: The University of California Press, 2002), 290.

47 Markowitz and Rosner, 292.

the lead intake."[48] In Abra Pampa, discussions on the bioavailability of lead have mostly centered around the somewhat enigmatic *humos blancos* particles. One of the leading arguments from health advocates who have worked in Abra Pampa cite the fact that *humos blancos* are small, very easily transported, and perhaps difficult to avoid in Abra Pampa due to their ability to travel undetectably on wind and in rain runoff. Particles have been deposited in soils where children play, on walls and doors that people touch, and in the air people in Abra Pampa breathe, no matter their distance from deposits of heavy metal waste.

When confronted with such enigmatic sources of lead contamination, Paul Mushak notes, a number of different studies on lead contamination and its sources could produce completely different results, due to factors such as age group, how long residents have lived in presumably contaminated communities, and the extent to which an education campaign took place before blood-lead samples were taken, which could temporarily reduce average blood-lead levels in samples if precautionary measures had been taken. In other words, "little standardization of study designs in these lead-exposed communities has been done. Different researchers studying the same community can arrive at quite different results, depending on the nature of the study design."[49]

Officials in the provincial government of Jujuy have capitalized on this lack of standardization to conduct studies that produce completely different results from those which present evidence that criticizes its inaction on lead contamination. This comes through most clearly in the case of Abra pampa in tensions between the INQA group and the Ministry of Health, which has a "Bioethics Committee" that approves the

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48 Mushak, Paul. "Uses and Limits of Empirical Data in Measuring and Modeling Human Lead Exposure." *Environmental Health Perspectives* 106, no. 6 (1998): 1467-1484. P. 1468

49 Mushak, 1472.

methodology of health studies carried out in Jujuy as a condition of their ability to be published. INQA is a group of engineers and doctors with the public National University of Jujuy, located in the provincial capital San Salvador de Jujuy, who in recent years have attempted to study the environmental and health impact of mining and other extractive industry activities in Abra Pampa and other places in the province. Although INQA takes care to complete all steps to approve their projects through the Bioethics Committee of the Ministry of Health, one member of the group confided in an interview that it is "no secret" that the Ministry has attempted to block publication of several of their studies: "We waited over one year for approval from the Ministry of Health. We submitted our protocol, our methodology, our consent forms, everything to the Bioethics Committee, and we would wait months until it gave us a response," she said.

INQA did eventually earn approval from the Ministry of Health to publish its findings, but in an interview with said Ministry in January of 2010, the head of the Bioethics Committee denied ever having granted approval of the methodology of their study, which garnered much local and national media attention for its claims that 81% of sampled children in Abra Pampa had unacceptably high levels of lead in their blood. The INQA group is currently designing a study on the health effects of a lead smelter that is currently in operation in nearby Palpalá, and has been awaiting a response and approval from the Bioethics Committee to begin the project for over two years, according to INQA members.

In 2007, the same year in which the INQA group's study on blood-lead levels in children in Abra Pampa was published, the Ministry of Health of the province of Jujuy began its own health study to "georeference" cases of lead poisoning in Abra Pampa. Part of the rationale behind said study, according to Dr. Marcelo Bellone of the Ministry of Health, is that "lead can be present anywhere," including in rocks in the surrounding

environment. Furthermore, he noted in an interview with the University of Texas Human Rights Clinic, preliminary results showed "no correlation" between blood-lead levels and distance from homes and the Metal Huasi smelter.

Although this study has yet to be published and publicly disseminated, Carlos Ripoll, a public health director of the province of Jujuy, handed a copy of the results to me in an interview in which he and other health officials with the Ministry widely discredited the work of INQA, and subsequently my own work, for having cited the group's study of 2006. Ironically, the study uses some of the same language of the INQA study word-for-word, yet reaches completely opposite conclusions. A side-by-side reading of the two studies leads one to the conclusion that the Ministry of Health's study is a "counterstudy" of sorts, which attempts to "scientifically" disprove previous independent results on the extent of lead contamination that might directly stem from Metal Huasi and the waste that was left exposed to the air for decades.

The Ministry of Health's georeference study, which emphasizes the fact that it is based on the WHO's standard of 10 µg/dL as an "acceptable" maximum level of lead in the blood (as opposed to 5, which is increasingly recognized in the medical community and was the standard cited in the INQA report), builds from an apparent motivation to discredit the INQA results of 2007. On the INQA report, it notes in its preliminary summary of results from 2007 that "from the total of analyzed samples (234), 28% had values higher than 10µg/dL, the minimum accepted by the WHO,"[50] and implicit qualification of the widely-cited 81% that had been published in the INQA report. It goes on to note that results of tests on children who took part in the INQA study in 2006 were supposedly never turned in to the hospital of Abra Pampa or to the Ministry of Health of

50 "Contaminación por plomo en el pueblo de Abra Pampa, Departamento Cochinoca Provincia de Jujuy," *Ministerio de Salud de la Provincia de Jujuy*, 2007.

the province (though INQA members did deliver them to families of sampled children), and there is therefore "no evidence that would indicate the presence and/or possibility of children with acute lead or chronic lead poisoning in Abra Pampa."[51] In results of the study that were apparently finalized in 2009, the Ministry goes on to conclude that behavior typical of children – such as crawling, eating dirt, and putting objects in their mouth – do not place them at higher risk of exposure to bioavailable lead particles, a direct contradiction of a major conclusion and subsequent educational campaign of the INQA group.

Despite this near blanket denial of health consequences of lead smelting activity in Abra Pampa, discourse on remediation at times, paradoxically, *acknowledges* health and environmental concerns. News articles often quote officials from the very offices that downplay the results reached in independent studies on lead contamination as saying that the health and environmental situation in Abra Pampa is urgent, playing up its "proactive" role in cleaning up the lead despite the fact that waste was left by a private company, and therefore not in the State's purview to remedy. The promise of remediation, despite the problematic ways in which it has been carried out and the fact that it is nowhere near complete, reads as a hopeful, if empty, rhetorical solution.

The role remediation might play in justifying the State's own authority over the issue of lead contamination becomes a bit more apparent when viewed through criticism that Argentine semiotics scholar Mirta Antonelli has applied to the mining industry in Argentina. The mining industry, Antonelli argues, operates on a basis of a manipulative "good neighbor politics", in which community improvement projects, investment in environmental remediation, and a general promotion of sustainable development

[51] Ibid.

practices create a "pact of peaceful 'association' between mining companies and the jurisdictional State."[52]

Part of this display of "good neighbor politics," Antonelli continues, comes through in mining companies' co-optation of principles of deliberative democracy and a "culture of/for peace", which seeks to displace community discontent with mining activity. Antonelli identifies two "discursive models": a "deliberative" model, which "aims for consensus regarding the extractive model", and "dialogue" model, which is used to "reach agreements, negotiations, etc., which erode obstacles to mining expansion in threatened or affected communities."[53] In this sense, projects like remediation and affirmations of environmental and/or corporate responsibility, under ostensible "engagement" with the community, are meant to facilitate ultimate acceptance of mining projects, in her view. In practice, however, Antonelli notes that mining companies "construct and consolidate a scientific discourse…that invokes 'expert knowledge' inaccessible to the common people"[54] in order to justify their own policies.

While Antonelli's work is empirically about a different stage in the mining process – that of granting concessions – and Abra Pampa's issues with lead contamination are related to problematic environmental regulations *after* mining activity has ceased, it is important to note that in Abra Pampa, discourse on remediation fulfills a similar role as the "dialogue model" outlined above. The contracting of CESEL, a huge Peruvian mining consulting firm which features "before and after" pictures of degraded areas they have "remade" in other Latin American countries, and the signing of the

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52 Mirta A. Antonelli, "Minería transnacional y dispositivos de intervención en la cultura: La gestión del paradigmo hegemónico de la 'mineria responsible y desarrollo sustentable'." In *Minería transnacional, narrativas del desarrollo y resistencias sociales,* Maristella Svampa and Mirta A. Antonelli, eds. (Buenos Aires: Editorial Biblios, 2009), 78.

53 Antonelli, 96-7.

54 Antonelli, 85.

remediation loan contract as part of the IDB's "sustainable mining" project, send the message that mining's wrongs can and will eventually be corrected. Skeptical Abra Pampa residents wonder if the remediation process is just a façade for hiding or excusing environmentally harmful practices in the mining sector.

Many suspect that mining interests are behind the remediation plan as it is currently being implemented, particularly since waste materials are being held at nearby Minera Aguilar, which is owned by Glencore International A.G., a Swiss mining company that proclaims itself "a major participant in the global flow of natural resources" on its company Web site. Additionally, Abra Pampa is being touted as a stop in a forthcoming "Mining Circuit" in Jujuy, meant to develop rural tourism in many of the communities where mining activity has taken place. This "ecotourism" circuit mentions Abra Pampa as an attraction near Mina Aguilar, which currently holds and manages waste that has been taken out of Abra Pampa to date.[55] Assuming that the tour would officially begin to operate *after* remediation takes place, here it would play a decidedly important factor in enhancing the mining industry's image to be sold to tourists.

When representatives of CESEL arrived in Abra Pampa in February of 2010, they held a sparsely-attended "town hall meeting" of sorts with residents of Abra Pampa (although many of them were not aware that it was going to happen) and representatives of GEAMIN to introduce themselves and the work they would be doing. According to one resident who attended, "they gave us a brochure telling us about what they do. It had pictures of the ugliest mine on Earth, and next to it a picture of how they cleaned it up. It suddenly had trees, grass…but you know what? It looked painted!" CESEL has set up a

55 "Circuito Minero de Jujuy", *Ecojujuy*, http://ecojujuy.com.ar/varios/turismo_mineria.htm.

Web site, http://www.abrapamparemedia.com, that has links for information on the progress of scientific studies carried out in Abra Pampa, a "transparency" section in which citizens can participate in a forum, and suggests that the firm's activities will lead to two imminent "phases" of remediation: to remove waste in the Barrio 12 de Octubre and to determine levels of contamination for "all areas" impacted by Metal Huasi.[56] From February until May of 2011, however, this Web site did not function.

While ostensibly this information does sound promising and transparent, the majority of the information that was on the site is phrased in such a way that only scientists with highly specialized training are likely to understand. There is no specific information on exactly *when* or *how* said remediation is to take place, and it is unclear how information gleaned from CESEL's studies in Abra Pampa will be used toward environmental remediation. In an interview in July of 2010, a spokesman from the office of Abra Pampa mayor Ariel Machaca affirmed that study results would be available sometime in September of 2010, but that "complete remediation will take place, especially in the Barrio 12 de Octubre, before the end of the year." As of March 2011, no actions toward remediation – nor dissemination of the results of CESEL's studies – had yet taken place.

In mid-2010, residents awaited the return of CESEL scientists to reveal the results of studies they had carried out in the town earlier that year. A special town hall meeting was to be held on July 15, in which these scientists were to share their results with the public, and the federal and provincial mining secretariats would then outline "next steps" in the remediation process. When I arrived in Abra Pampa in early June of 2010, one of my informants, among the most consistently vocal on the issue of lead in the town,

56 http://abrapamparemedia.com/en-que-consiste-el-plan-de-remediacion

immediately told me, "July 15 – write that down. It's going to be a very important day. They're going to come and tell us what they know about the lead." July 15 eventually came and went with no news from the firm, and as of April of 2011, it has still not shared any published results with the community. An anonymous reader's comment in the "feedback" section of a Web article on CESEL's first visit to Abra Pampa in February of 2010 summarizes the current sentiment in Abra Pampa regarding remediation. After a sentence affirming that "the opinion of residents at the meeting was optimistic and confident that the [remediation] tasks would be realized rapidly, seriously, and safely, and that they would give full support so that these tasks could be carried out," a single, unpunctuated word in the comment section at the bottom of the Web page reads "*cuando*": "when".[57] This question has yet to be answered.

Through simultaneous acknowledgment and denial and use of inaccessible scientific rhetoric that amounts to little more than "neighborly" propaganda, public officials from dominant governmental institutions have both diverted and confused attention on lead contamination on Abra Pampa. Here, the provincial government of Jujuy, which has close ties to the lucrative mining industry, legitimizes its own authority through the monopolization of intransparent scientific information that seeks to discredit independent investigation, hinting at Gaventa, Lukes, and Crenson's theories say on legitimization and subtle exercise of power. Through downplaying the extent to which lead waste from Metal Huasi may be a direct cause of lead contamination in Abra Pampa residents, placing "legitimate" knowledge in its own hands, and heralding a dubious

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[57] Original: "La opinión de los vecinos en esta jornada fue de optimismo y confianza en que las tareas se realizaran en forma rápida seria y segura y que prestaran todo el apoyo para que las mismas se cumplan." "En Abra Pampa presentaron el diseño del plan de remediación ambiental," *La Hora de Jujuy* 19 February 2010. http://www.lahoradejujuy.com.ar/index.php?option=com_content&view=article&id=16784:en-abra-pampa-presentaron-el-diseno-del-plan-de-remediacion-ambiental&catid=92:tecnologia&Itemid=281.

cleanup plan as a solution to problems it itself has denied, the provincial government has attempted to divert "issueness" of the problem of lead contamination.

By holding a rhetorical monopoly on "scientifically valid" information and publicly discrediting reports that present unfavorable evidence of human suffering at the hands of mining-related activity, the federal provincial mining authorities and Ministry of Health of the province of Jujuy attempt to assert their own legitimacy. This exertion of power, through the control of knowledge, reflects Lukes' (and Gaventa's interpretation of Lukes) "third dimension" of power, in which attempts to avert opposition and maintaining unequal power imbalances between mining interests and communities which are adversely affected by mining activity. The following chapters will explore how Abra Pampa residents engage with this and other outsider-produced "knowledge", describing the extent to which uncertainty and "issueness" regarding lead arise.

CHAPTER 4: OUTSIDER INTERVENTIONS AND RISK PERCEPTIONS

"What we have is sacred and what we suffer today is your people's fault…Please, no more multinationals in our territory!!!"[58] These concluding sentences to a note I received explaining the reason that a group did not want to give an interview with me in June of 2010 perhaps best encapsulates the symbolic violence that has been committed against Abra Pampa residents by outsiders who come to study lead contamination. In the past decade, dozens of people and organizations have come to Abra Pampa to measure contamination of the environment and residents' health: journalists, lawyers, engineers, activists, doctors, government officials, mining company representatives, and law and graduate students from the University of Texas. While these groups have come with a variety of motives and their publications have received mixed appraisals from Abra Pampa residents, one thing is clear: these interventions, which often provide some kind of "expert" evaluation of contamination in Abra Pampa, contribute to "toxic uncertainty" there by providing differing, and contested, degrees of recognition or denial of problems associated with lead. Additionally, little concrete action has been taken toward improving environmental and health conditions in Abra Pampa as the result of these studies, contributing to a deep distrust of outsiders that many residents share.

Residents' interactions with outsider and "expert" evaluation of lead contamination have both shaped and precluded the degree to which Metal Huasi waste is defined as a problem in the town. Various studies and political interventions in the town

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58 Original: "Lo nuestro es sagrado y las consecuencias que hoy sufrimos es por culpa de Uds…Por favor no más multinacionales en nuestro territorio!!!"

seek to "objectify" the question of lead contamination, but in so doing, they create multiple discourses that assert multiple conclusions on contamination, which often fall along political lines. Outsider interventions have both correlated with and, in other instances, perhaps precluded the formation of common definitions of lead contamination as a serious problem. This chapter seeks to outline what Auyero and Swistun call the "labor of confusion," which is "performed by a series of interconnected actors", as it relates to how Abra Pampa residents understand actual risk that Metal Huasi waste poses vis-à-vis outsiders' evaluations and actions.

This chapter will discuss three specific "outsider" interventions on the question of lead: first, it will discuss the effects of health studies and of actions that have been taken (or ignored) toward environmental remediation. Finally, on a personal note, I will briefly discuss the impact of the interventions of University of Texas at Austin students, both the Human Rights Clinic and my own as an independent researcher. Evidence from interviews conducted with many residents suggests that interventions in the form of health studies have both aided and correlated with organized public protest in Abra Pampa, but at the same time are actively discredited by residents who do not consider lead contamination to be a problem. Other interventions, namely toward remediation, have been dubbed "tricky" ("*truco*") for their perceived links to profit in the mining industry, meant to minimize the alarm that has sprung up in the past regarding lead waste in the town (hence the reaction I received in the note quoted above). Whatever the intentions of outsiders, there is a common preoccupation among Abra Pampa residents: conflicting study results and focuses lead to conflicting understandings of the extent and gravity of exposure to lead waste, which has contributed to a general feeling of despair that "outsiders" will actually solve the environmental and public health problems linked to lead contamination.

HEALTH STUDIES

As has been mentioned in the first chapter of this case study, health studies in Abra Pampa have at least correlated with peak moments of heightened public concern over lead in the town. The 1986 health study, the first published government acknowledgment of lead contamination in children in Abra Pampa, was conducted at a time in which residents were rallying around air pollution stemming from Metal Huasi. The provincial government's 2004 study and the INQA group's 2006 study brought heightened local and national attention to the problems associated with Metal Huasi even twenty years after it closed, correlating with collective mobilization around the pile of lead waste in the center of the town. In a way, then, quantifying and objectifying the amount of lead in children's blood raised consciousness of the dangers that residents faced, providing a specific measure of how pollution and waste affect residents.

Aside from the three studies mentioned above, the law office of Riad Quintar, who is a provincial-level political representative based in San Salvador de Jujuy, played an instrumental role in transforming, as one resident put it, "what we always suspected into reality." Beginning in the year 2003, Riad Quintar's office hired an outside group of doctors to take blood from several residents to determine the amount of lead they had in their blood. Eventually, dozens of families joined three separate suits against the municipality for health damages in residents whose blood-lead levels measured above 10 μg/dL.[59] A total of around 400 Abra Pampa residents are now part of the Quintar suit.

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59 These three suits have merged into one, which is awaiting a decision on whether the municipality or the province should be held responsible for lead contamination.

Nearly all of the people who I interviewed who consistently framed lead as a problem in Abra Pampa were parties to the Quintar suit, and most cited Quintar's health study as that which gave them a clearer understanding of the problems that lead poses:

> "Before, I always knew I was sick. My head would hurt, my body would hurt…then I got my [blood test] results back, and I knew it must be from lead."

> "My results show less than 10 [µg/dL], so for me it's not that bad. My husband has twice that much, so I worry for him."

> "I never thought about lead until about 2003, 2005, whenever I first gave blood with Quintar. It turns out we're all contaminated, and that makes life here hard, you know?"

For many residents, particularly those involved in the Quintar case, lead contamination is understood as something quantifiable that they possess in their bodies. Many of them tap the inside of their forearm when they talk about lead and its health effects, a gesture that suggests they have given blood for at least one of various health studies that have been conducted in Abra Pampa. Results showing a high level of lead in the blood, particularly in tests performed after Metal Huasi stopped operating, seem to have played an instrumental role in redefining Metal Huasi *waste*, not just past pollution that emptied into the air, as a major health threat. For example, Fernando, the longtime Abra Pampa resident quoted extensively in Chapter One, says that he had "almost forgotten" the concerns that he and some neighbors had shared about Metal Huasi several years after it closed. "Then Quintar came, and I thought we should get tested," he says of his family. He learned that one of his sons, who was still quite young when Metal Huasi closed, had a blood-lead level of close to 50 µg/dL, five times that deemed "acceptable" and the point at which considerable cognitive and physical disabilities are evident. "Then

I knew why [my son] wasn't well. We all had really high levels of lead, and then people started talking about lead and Metal Huasi again."

One unintended consequence of the score of health studies that have been conducted in Abra Pampa in recent years, however, is that some consider their results to be the most legitimate form of "evidence" of their suffering. When test results contradict themselves or are not presented, residents question how lead actually affects them. Some residents who have given multiple blood samples report getting different results and do not know which is the most accurate, or why. One resident's summary of the studies in which he had taken place, and which is similar to many other residents who cited confusion, rather than certainty, about their blood-lead levels went as follows: "I gave three samples: in one, I had [20 μg/dL]. In another, 17. And in the third…I don't know. I'm contaminated, but I feel fine, so I just don't think about it."

The Health Ministry of Jujuy's most recent attempt to "georeference" the highest blood-lead levels in the town, presumably to help determine "priority" areas for targeted action during environmental remediation, is often cited as one that has provoked consternation and confusion among its participants. The results of this study have not yet been made public, and none of the interviewed residents who took part reported having learned their results. I received a copy of this study's preliminary results as the result of a January 2010 meeting with the Ministry, and it has concluded that a "probable" 10 percent of the 1,000 sampled residents is contaminated.[60] Officials working both within the Ministry and at the hospital in Abra Pampa claim that results from this study have been available at the hospital for years – though nobody who was interviewed and had

60 Ministerio de Salud de la Provincia de Jujuy, Untitled Study, 9 December, 2009. These figures are much lower than those revealed in previous health studies in Abra Pampa, which maintain that 80 percent of the town's children have blood –lead levels exceeding those deemed "normal" or "acceptable".

taken place in this study was ever made aware of that fact. Disturbingly, one employee at the Abra Pampa hospital noted that there are "dozens" of files, which this individual was once told were the results of blood tests taken for the georeference study, have never been opened. "How can the government be sure that its results are accurate if nobody has seen them?" this employee asked.

At the same time that scores of residents cite a better "understanding" of their health predicaments once they knew how much lead was in their blood, and how those specific quantities are likely to affect one's health, other residents are dubious on these tests' accuracy. They exhibit what Auyero and Swistun call "denial", a manifestation of toxic uncertainty in which "residents actually challenge existing data showing that environmental pollution has reached toxic levels or when they use their own healthy bodies to deny serious contamination."[61] Though residents know, from conclusions to health studies, from media coverage, and from what lawyers have told them, what the effects of lead contamination are, and which blood-lead levels are considered harmful, some note that there are groups of Abra Pampa residents who would seem most vulnerable to lead contamination but do not appear to show any signs of lead poisoning.

One such group are ex-employees of Metal Huasi, who are often used as "points of reference" when other residents describe their own doubts about the adverse effects of exposure to lead: "You see 80-year-old men who breathed that smoke and worked right next to the pile for years, and they ride their bicycles around town as if it were nothing (*"como si nada."*)." "You hear about people who lived next to the pile for years, and they say they're healthy." "He grew flowers next to the mountain [of lead]. How do you explain that?"

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[61] Auyero and Swistun, 91.

The latter question was posed regarding a 62-year-old man who lived on the grounds of Metal Huasi for over 25 years after having worked there most of his life, as both groundskeeper and as the owner of a small café that operated next to where the pile of lead waste once stood. This man, who many refer to as the most vocal "*contracara*" – "flipside" – to complaints related to contamination, maintains that he and his three children, now adults, are completely healthy, and that stories about the health effects of lead contamination are lies:

> "Mental atrophy? That's a lie. My children grew up on the [Metal Huasi] site with me and my wife. We lived there permanently. Now my daughter is an accountant and my sons are teachers…I'm not sick. I went to the doctor in [San Salvador de] Jujuy. My only problem is with my knee. People are just agitators."

Another former Metal Huasi worker, who now runs a small business three blocks away from the Metal Huasi site, noted that journalists and researchers from outside of Abra Pampa often approach him, assuming that he has high levels of lead in his blood:

> "I've never even had an analysis done," he said. "I feel fine. Do they want me to say I'm sick? You know, this whole thing with Metal Huasi is just an industry here. People conduct studies and start to talk about taking [waste] away to make money. I'm not interested in that."

While discourse on lead contamination often focuses on the imminent dangers people believe that children in particular face, in a few instances residents have pointed out contradictory moments in which children do not appear to be affected – residents have mentioned championship-winning basketball teams comprised of Abra Pampa students, children who won a recent math competition against other schools in the area, and the fact that, like the children of the man quoted above, many go on to professions which presumably they would not be able to do if they had been severely affected by lead poisoning. As with Metal Huasi workers, these groups of seemingly unaffected children

are occasionally referred to as evidence that contradicts medical literature on the health effects of lead contamination.

REMEDIATION

An earlier quote from an Abra Pampa resident, in her reaction to content on the CESEL Web site devoted to remediation in Abra Pampa, noted that "they talk a lot without saying anything." In this case, she was specifically referring to scientists from CESEL who provided much more information on highly specialized methodologies and actions that would one day be taken, rather than concrete information on steps that had be taken toward remediation to date. However, this sentiment can be extrapolated and applied to many other conversations on remediation and lead contamination in Abra Pampa, with the ubiquitous "they" being government and health officials, lawyers, and journalists who have intervened on the issue while only offering imminent, incomplete, or flat denial of solutions to the problem of contamination. This section highlights some of the dominant narratives on environmental lead contamination in Abra Pampa today, with special emphasis on the ways in which remediation plays in to discourse on the extent and gravity of lead contamination in the town.

The promise of remediation may have quelled collective mobilization for the time being, particularly since the strikingly visual reminder of lead contamination in the town has been removed the 15,000-ton *cerro* in the town center). However, there is still a general belief – albeit to different degrees – that lead poses some level of threat to residents' health. It is just not clear how great the actual risk might be, and remediation actions and discourse have exacerbated this confusion. Two major strands of discourse on remediation as it has been carried out so far reflect this confusion, as well as a deep

distrust in the government. One is that the partial and hasty initiation of remediation – removing the pile of lead at the Metal Huasi site without taking necessary environmental safety precautions – has exacerbated existing problems associated with contamination. Another is that actions toward remediation have confused which deposits and specific parts of lead waste are most dangerous, and the degree to which lead waste actually poses a threat to residents.

Rumor and distrust

Faced with a lack of concrete information on the progress or motives behind remediation that has been carried out so far, a slew of rumors has cropped up among Abra Pampa residents to explain the provincial government's potential motives behind hurriedly taking away parts of the Metal Huasi waste, without waiting for disbursement of IDB funds or first consulting with the community. Most of these rumors center on a belief that the province of Jujuy has only initiated "remediation" to the extent that someone is able to profit from it. This belief stems from the fact that the pile of lead in the town center and waste at the Arroyo Tabladitas site was removed under the auspices of the semi-private "Chamber of Mining" (*Cámara Minera*) of Jujuy, which is comprised of representatives of mining companies that operate in the province, and that Minera Aguilar, a mining company, is in charge of storing this waste underground in a nearby mine. Many residents believe that the Chamber of Mining only took materials that could be refined again. One lifelong resident remarked of the sudden removal of the pile in the town center, "*Cuando la limosna es grande, hasta el santo desconfía*." ("When the charity is great, even a saint will not trust it.") "*Hay plata en humo*," ("There is silver/money in smoke.") another joked, playing with the double meaning of "plata" in Argentinean Spanish to mean both "silver" (which was also processed at Metal Huasi)

and "money," referring to *humos blancos* in the waste that he believed was taken away for Minera Aguilar's profit.

Residents also speculate that waste has only been removed so far to make room for new development projects such as a new bus station or plaza in the area where Metal Huasi once operated. "They want to forget the bad and change it into something good," one woman remarked. "But who would want to sit in *that* plaza? The *Plaza Re Contaminada*!" ("Really Contaminated Plaza!"). A resident of the Barrio 12 de Octubre said, "It can't be that priorities are with transportation over soccer…Or is it that lead in the Barrio 12 de Octubre isn't as bad as lead at the [Metal Huasi site]?", referring to the fact that, unlike in the town center, where a new bus station is rumored to be built, waste in his neighborhood has not only remained virtually untouched by remediation efforts to date, but also doubles as a soccer field.

Other residents – particularly those who lived near the Metal Huasi site when the pile of lead was removed starting in late 2008 – maintain that this may have exacerbated problems associated with lead, noting the problematic ways in which the pile of lead was removed from the town center and the fact that remediation plans carry no provision to treat residents with high blood-lead levels. A family that has lived half a block from the Metal Huasi site for two generations offered a sort of "before and after" anecdote to describe problems they noted with lead contamination. While they and their children have always noted problems in their bones and vision, two symptoms of lead poisoning, they say things got worse after the pile of lead so close to their house was removed. "Something was released when they took it away so quickly," the mother of the family noted. "[In 2008 and 2009], the ground would shine at night. I would put clothes outside to dry, and they would turn white by the time they were dry. Before, we grew everything

in our garden, but the *humos blancos* [from the pile of lead] landed there and destroyed everything. Now that soil is useless."

A "marked indifference"

Some of the dominant narratives on contamination in Abra Pampa since the initiation of remediation reflect a perception that the pile of heavy metal waste in the town center presented perhaps the most clear and present danger to Abra Pampa residents. "That was the contamination you could see," noted one middle-aged lifelong Abra Pampa resident who grew up three blocks away from the smelter. "Now that it's gone, there is a marked indifference toward the issue of lead." In addition to being the symbol around which Abra Pampa residents rallied during brief periods of collective mobilization on the issue of lead contamination, the pile of waste next to the smelter was also the topic of the health studies conducted in 1986, 2004, and 2006, as they measured the blood-lead levels of children living within varying concentric distances of the smelter. When the provincial Chamber of Mining removed the pile of lead from the town center in late 2008, many residents note, protest on the existence of the heavy metal waste died down as well. The fact that a large spread of heavy metal slag that is chemically similar to that which existed at the smelter site, as well as remnants of *humos blancos* on the Metal Huasi grounds and at the Arroyo Tabladitas, have not garnered a comparable level of sustained public concern.

One interviewed resident, for example, maintains that assertions of the dangers present in Metal Huasi waste that has not yet been taken away, including *humos blancos*, are misguided: "Dust [*humos blancos*] is not lead. All that is left there is garbage. It doesn't contaminate. That's not hurting anybody." Another resident maintains that, because *humos blancos* are so difficult to measure and manage due to their size and

ability to regenerate on exposed lead, it is "not worth getting worried" about them. "They're probably all around town, but maybe not enough to make you sick," he says. "It's not like before, when there was a small mountain of pure lead."

Despite the fact that waste that had been deposited in what is now the Barrio 12 de Octubre and Arroyo Tabladitas is essentially the same as what was found at the Metal Huasi site, there has been a general sense that the waste at the Metal Huasi site was somehow the "most dangerous." One Barrio 12 de Octubre mother, who has long been concerned about the effects of lead on her four children, said that shortly after the pile was removed from the town center in 2009, her 8-year-old son brought a piece of the metal waste he found near Metal Huasi to school to show his teacher. He wanted to do a science project about the lead waste he had heard so much about at that time:

> "She asked him where he found the waste, and when he told her 'Metal Huasi,' she told him to take the lead out immediately because it was poison and was going to make his classmates sick. When he came home that night, he asked me, "Mama, if one little piece of lead is so poisonous in the classroom, why is there still so much of it on the soccer field?' [near their house]. I didn't have an answer."

Additionally, some interviewed residents are skeptical of how officials with the federal mining secretariat in 2007 and, three years later, scientists from CESEL, took samples of the air to determine how much *humos blancos* were contaminating it to inform subsequent cleanup. Some voiced concerns that they weren't taking samples during the predictably windiest months in Abra Pampa, when *humos blancos* may have been more present, and that stations where air was captured was either upwind or too far away from the town to reflect what they believe is their contaminated reality. While methodologies for determining the amounts of lead contamination in the air, soil, and water were made "transparent" on CESEL's "Abra Pampa Remedia" Web site, they were given in such highly-specialized mathematical and scientific language that very few lay

people visiting the site are likely to understand. To date, results from studies CESEL conducted in February-April of 2010 have only been released to the federal mining secretariat. This, combined with contradictory or nonexistent blood sample results, has contributed to a generalized confusion about how much the State's "science" represents reality. As one resident put it, "We know we're contaminated; we just don't know how much." Another remarked that he had heard from "someone who works in the municipal government" that "somebody with CESEL told him that, 'according to my experience, there is no contamination in Abra Pampa.'" Whether or not this statement is true, it indicates a level of suspicion and doubt about what CESEL is supposedly quantifying, why, and what the results of contamination may have been.

THE UNIVERSITY OF TEXAS

Since my multiple visits and ongoing research in Abra Pampa have made me a recognizable and conspicuous "outsider" in Abra Pampa, I feel it is necessary to evaluate my own presence in Abra Pampa, both as a member of the Human Rights Clinic of the University of Texas School of Law in 2009 and as an independent researcher who has traveled to Abra Pampa to conduct fieldwork for this study. It is difficult to clearly articulate what the impact of these projects has been or will be in Abra Pampa, due to the fact that they are relatively recent and few people explicitly addressed them in interviews. Additionally, I found early in my ethnographic fieldwork that few Abra Pampa residents had seen or even heard about the human rights report before my first solo visit in January of 2010, three months after several governmental offices and NGOs had received copies. Thus, in this section, I will reflect on people's reactions toward me as an independent

researcher – but one who is usually identified a co-author of the Human Rights Clinic's report – as potential indicators of confusion provoked by these interventions.

First, it should be reiterated here that I was a conspicuous outsider in Abra Pampa and in San Salvador de Jujuy, and I believe that my affiliation with the University of Texas heavily influenced both who agreed to give interviews and the content of these interviews, especially among those who had seen or heard of the Human Rights Clinic's report prior to speaking with me. This was clearly evident in the interview with the Ministry of Health in January of 2010 that is described in the introduction to this study. This was also true of my early ethnographic interviews in Abra Pampa that year, since many of my initial contacts were either perhaps unusually willing to speak with me or overtly distrustful of me because of my affiliation with the Human Rights Clinic, depending on the degree to which they view contamination as a threat.

Most of the reactions to the Clinic's work that I registered were from governmental officials or professionals working outside of Abra Pampa who received copies of the Human Rights Clinic's report – which ranged from active discrediting of the report or government officials' refusal to give interviews to offers of support from activists and human rights defenders to phone calls from Argentine lawyers working on similar cases in other cities. In these cases, I was assumed to be a lawyer or environmental contamination "expert", and people's reactions to my presence and to the Clinic's work likely reflected their own interests in intervening (or failing to intervene) on the question of lead in Abra Pampa.

In Abra Pampa itself, however, I found that my position as a researcher and co-author of the human rights report occasionally put me in an uncomfortable role as an "expert" on lead contamination there. In more than one interview, when people noted having health problems with lead, they would ask me or assume that I knew what specific

health problems correlate with specific blood-lead levels. Others would ask me in which years certain studies, demonstrations, and article publications occurred, or assumed that I somehow "knew more" about the history of the town as an outside researcher than they did as residents. These assumptions are problematic, and likely indicate popular uncertainty that has been provoked or at least exacerbated by past interventions and multiple versions of the "truth" on lead contamination.

While some "outsider" interventions are perceived as having a "positive effect" on residents' ability to name lead waste as a problem – namely those done in the form of taking blood samples to quantify lead poisoning in Abra Pampa – others, namely remediation, have left residents skeptical, distrustful, or perhaps more confused on what elements of the lead waste that remains in the town are actually harmful. The fact that remediation has been carried out hastily and with very little transparency – or at least without providing much substantive information – contributes to this confusion by relegating future actions and rationale behind actions taken to date to rumor and hearsay. The multiple truths that outsiders have professed about the state and severity of contamination in Abra Pampa have provided moments of clarity as well as doubt among residents.

CHAPTER 5: CLASS AND DENIAL AND RECOGNITION OF SUFFERING

In the first chapter, it was mentioned that when many people in Abra Pampa talk about lead, it is often relegated to background noise, or as a bullet point in a long list of more immediate health and social concerns in the town. Key among these are a perceived increase in the use of drugs, alcoholism, teenage pregnancy, teenage suicide, lack of potable water in some neighborhoods, sub-par hospital facilities, the presence of traffickers of *"paco"* (unprocessed cocaine), proximity to the town's open-air landfill, inadequate drainage of wastewater, and widespread unemployment. Given this context, it is perhaps no wonder that lead, an "invisible" contaminant that has not consistently been framed as an immediate threat to the town, is not usually at the top of a growing list of concerns that residents express about life in Abra Pampa. However, one of the most striking aspects of discourse on contamination and health problems in Abra Pampa, when they occur, is the frequency by which class and space are invoked to either recognize or deny the gravity of lead contamination. When residents do talk about the effects of lead, there emerges not only a "healthy professional" versus "sick poor" dichotomy, but also one which pits the newer (mostly poorer) sections of town against the older, more established residential areas of the town center, part of a broader narrative of social inequality that some longtime residents of Abra Pampa noted in interviews.

Several lifelong residents of Abra Pampa attribute the exacerbation of social problems to population growth in the town in recent years, and discussion of the effects of lead on the population reflect a class bias that is, at times, appalling. As has been mentioned earlier, Abra Pampa's population is estimated to have doubled in the ten years since 2001, due to a general decline of financial support for small-scale farmers who

formerly lived several kilometers away from Abra Pampa and the closure of mines (and subsequent exodus from mining towns) in nearby areas, which caused many families to migrate to the relatively more urban Abra Pampa in order to access basic necessities, education, health care, and potential job opportunities. As a result, Abra Pampa has been growing around the periphery of the town center and to the East of the now-defunct railroad tracks that divide the town into East and West (see maps in Chapter One).

There is a clear, and at times disheartening, division among those who recognize the fact that lead contamination is harmful and difficult to "avoid" in Abra Pampa and those who insinuate that contamination is exclusively a problem of poverty. It is true that certain conditions of poverty, such as malnutrition and lack of access to potable water, likely leave certain sectors of the population of Abra Pampa more vulnerable to the effects of exposure to lead waste than others, but the blaming of these sectors for their own illnesses related to environmental contamination reflects "toxic uncertainty" to the extent that it misrecognizes the sources and potential effects of lead contamination. This chapter illustrates how various perspectives on the extent to which and reasons that people suffer often fall along class lines, through the narratives of two residents who frame their suffering as compounded by a broader history of structural discrimination, and through the perspectives some resident health professionals and the federal and provincial-level Mining Secretariat, who offer their own class- and ethnicity-based explanations for why lead is – or is not – a widespread problem in Abra Pampa.

ELISA: "WE ARE ALL, IN REALITY, VERY FRAGILE."

Elisa, age 28, is the mother of two young children and a lifelong resident of Abra Pampa. She grew up in the town center, a block and a half away from the Metal Huasi

smelter, with her parents and eight brothers and sisters in her paternal grandparents' house, but recently moved to a new, federally-subsidized home with her husband, a seasonally-employed construction worker, and children a few blocks away. Elisa remembers being ill for most of her childhood, as were her siblings, a fact that she now attributes to living close to Metal Huasi when it was operating. She suspects that most of her and her family's health problems can be traced to lead exposure, a fact that she says health professionals working in the town are not willing to recognize or treat.

"They say being here is like being condemned to death," she says one day over coffee in her home as she holds her youngest child, an infant, in her living room. "We suffer here all day. I lived close to Metal Huasi for most of my life. I've moved, but it's also not so far now, right?" she says with a laugh, referring to the fact that she now lives about four blocks away.

"I am worried about my children, especially this one, who was born with green and purple marks on her legs and her arm," she says, motioning to her baby. She suspects these marks, which doctors in Abra Pampa tell her are "normal", have to do with her exposure to lead while she was pregnant. She says that her son, who is in primary school, has problems remembering things he learns in the classroom, and that he cries at night because he says his bones hurt.

"The only thing that helps him is milk," she says, "but who can afford that every day? If you have money, you can live healthily." She notes that dairy products, which are important for mitigating the effects of lead exposure because calcium helps prevent absorption of lead in bones, are also among the most expensive in local markets. The hospital in Abra Pampa runs a program in which families with young children can receive a certain quantity of powdered milk per month, but Elisa notes that children are only eligible to receive the milk until they are six years old, so the hospital no longer provides

milk for her son. "Now he lives on ibuprofen," she says. "He forgets things he learns at school. He is intelligent, and we practice things – letters, math – but sometimes I feel like there's nothing I can do for him."

Elisa mentions that she, her son, and her husband, have had their blood tested for lead in order to join the lawsuit headed by the firm of Riad Quintar. Her husband and son have levels of lead in their blood that are clinically considered "high", exceeding 10 µg/dL, but that she has 9 µg/dL and therefore, she says, is not at a high risk as they are. "I worry about them," she says, "and me, too, even though I don't have as much [lead]. But I am afraid that I will suddenly get sick. I forget things, my bones hurt…what if I get cancer? Or leukemia? The hospital here won't help."

One of Elisa's sisters, who also has an infant child, and mother have also joined for coffee this particular afternoon, and explain that Elisa's situation is by no means unique.

"They give you ibuprofen for everything," says her sister, Carolina. "Here everything is a 'general infection.' You go to the doctor here and say 'my bones hurt, I forget things,' you know, and it's always the same. 'Oh, you have a general infection. That will pass.' What do I do if they tell me I'm healthy? They don't want to tell me it's all because of the lead."

Elisa, Carolina, and their mother offer numerous examples of the grave health problems they believe lead has on life in Abra Pampa. Their mother, Leticia, mentions a son who missed two years of school due to respiratory and growth problems that she now thinks were probably caused by living in close proximity to Metal Huasi, and that all of her children would regularly have nosebleeds when they were young. Leticia, who did not grow up in Abra Pampa but moved there some 30 years ago when she got married, mentions her own respiratory, bone, and memory problems. "Maybe it's because I'm

older, but I've never felt healthy in Abra Pampa, and now I know it's from the lead. It affects you psychologically, you know, they talk about suicide, alcoholism…people are depressed, children can't learn in school. The doctors don't say this, but it's all related to lead."

Elisa, Carolina, and Leticia believe that lead poisoning does not only affect humans. Elisa had a dog with four testicles, Carolina had a dog with two rows of teeth in his bottom jaw, and Leticia mentions several family friends that have had animals who were born blind or without genitals, and goats who have been incapable of producing milk. "You can't even sell meat from animals in Abra Pampa," says Carolina. "Forget it. Nobody will buy it, everyone knows about the lead…But people still eat their own goats, llamas, other things that grow here. It's not healthy, but what option are we left with?" she asks, referring to the rising prices of meat brought in from other locations.

"It's true, life here is very hard," says Elisa. "And the doctors don't help with anything. Here the doctors are fourth-rate. We are all, in reality, very fragile."

Elisa and her family's story is all too familiar among other residents who express concerns over the gravity that they believe lead waste poses in Abra Pampa. They are afraid for their and their families' livelihoods and they recognize the dangers associated with lead exposure, but feel helpless in preventing it from affecting their health, usually for economic reasons. Unable to travel long distances often for higher-quality health care, they must accept "general infection" as a diagnosis, ibuprofen as an antidote, and physical deformities and pain as "normal." As a result, there is a tendency to link all problems to lead, a general distrust of all health services, and a subsequent paranoia that existing health problems and continued exposure to lead waste will escalate into something more serious (cancer, leukemia) without their knowledge.

Elisa's comment, "If you have money, you can live healthily," is particularly salient here. Not only do "healthy" foods that would mitigate the effects of or avoid contamination (such as meat and plants grown outside of the town) cost more, but quality healthcare is much more difficult to access without the time and means to get to the places that provide it. Abra Pampa is the political and economic capital of the region known as the *puna*, but its hospital does not have an operating room or any medical specialists. In fact, the only two cities in the entire province of Jujuy that have hospitals with operating rooms are in La Quiaca, about an hour bus ride north of Abra Pampa on the border with Bolivia, and in the provincial capital San Salvador, about 3-5 hours south of Abra Pampa. It is not uncommon for people from the area to die en route to one of these cities in an emergency, and residents report that waiting time at clinics and emergency rooms there can often last several hours, due to the fact that many people need to travel from rural areas to these cities to access health care. It should also be noted that many Abra Pampa residents do not own a car and therefore rely on long-distance bus service to get to better-quality hospitals in La Quiaca and San Salvador.

Problematic access basic health services in Abra Pampa reflects structural inequalities that fall along ethnic and demographic lines in the area. Statistics from 2004 and 2005 note a population of 53,106 Kolla in the provinces of Jujuy and Salta,[62] roughly 70% of which does not hold any type of health insurance plan.[63] 24% of the surveyed population must travel over 10 km to the nearest public hospital, and 39% of this group

62 INDEC. Encuesta Complementaria de Pueblos Indígenas (ECPI) 2004-2005, Complementaria del Censo Nacional de Población, Hogares y Viviendas 2001. Cuadro 1.3, "Población kolla por grandes grupos de edad. Jujuy y Salta. Años 2004-2005."

63 Ibid, Cuadro 4.2, "Población kolla por edad según cobertura por obra social y/o plan de salud privado o mutual. Jujuy y Salta. Años 2004-2005."

includes people, like Abra Pampa residents who need an emergency room, operating room, or a visit with a medical specialist, who must travel 50 km or more.[64]

ROCÍO: "HERE IN BARRIO 12 DE OCTUBRE THEY DON'T GIVE US THE TIME OF DAY."

Rocío, an elderly woman who runs a small shop in a front room of her house in the Barrio 12 de Octubre, moved to Abra Pampa from the countryside to live with her son, who had left for Abra Pampa a few years prior, in the early 2000s. "Oh, lead is a big problem here [in 12 de Octubre]," she says. She holds her back for emphasis as she explains how "everything hurts" because of her exposure to lead: her bones, her head, her throat.

"On windy days, when I go outside to hang up the clothes, there's such a strong smell," she says, gesturing toward where the football field-sized spread of lead waste has remained untouched just a couple of blocks away. "It comes from that way. On those days, clothes come back a little white. Lead is everywhere here, but what can we do?"

"I don't go to the hospital anymore," she says. "Nothing matters there. Nothing is ever about lead. *Hay que hacerles creer que hay plomo*" ("We have to convince them there is lead"), she says, noting the struggle she and other residents face for recognition of their health problems.

Rocío, like many others living in the Barrio 12 de Octubre, frames her exposure to lead waste there as part of a larger pattern of discrimination in Abra Pampa. The Barrio 12 de Octubre, which expanded around the football field-sized spread of smelter waste a few blocks East of Metal Huasi, is on the side of town which has a relative lack of infrastructure: roads are unpaved, until recently there were no streetlights, and some

64 Ibid, Cuadro 10.1, "Hogares del pueblo kolla por medio de transporte utilizado por sus integrantes para llegar al hospital public más cercano. Jujuy y Salta. Años 2004-2005."

houses do not have plumbing. "Here in Barrio 12 de Octubre they don't give us the time of day (*"No nos dan ni un cinco de importancia*")," she says. "They talk about remediation, but they'll never take the lead out."

She laughs about the fact that the provincial government installed a chain-link fence around waste in the Barrio 12 de Octubre as an initial phase in the remediation process, as if that would delineate "contaminated" from "non-contaminated" ground, and that it runs so close to some homes in the neighborhood. "Do you think that's really where the lead ends? No!" she says. "It's everywhere. This neighborhood is built on top of lead."

Rocío remembers that, just prior to the time when the chain-link fence was installed in the Barrio 12 de Octubre, the municipality put a sign up on top of the waste in the neighborhood warning residents to "take care of their health" and that the area was contaminated. "Somebody cut that sign down," she says. "People didn't pay attention to it. It was right in the middle of their neighborhood."

Rocío explains that, what might look like "apathy" toward lead contamination in her neighborhood are really just actions taken out of necessity of living there. "They say buy this," she says, gesturing toward 2-liter bottles of water on the floor of her shop. "But that's too expensive for people living here. When people are done using water [for bathing, for washing dishes, etc.], they throw it outside on the ground. They say not to do that because the water has lead. Well, how do we wash ourselves then?" Rocío says that contact with lead is "inevitable" in the Barrio 12 de Octubre. "Mr. Quintar says this is 'Chernobyl II,'" she says. "It's all contaminated, and they haven't taken any [of the lead] away."

"THEY BUY WINE INSTEAD OF MILK."

Despite residents' growing public concern with lead in recent years, interviewed health professionals working in Abra Pampa's hospital do not recognize or reflect this concern. One interviewed doctor, when asked if the hospital had provided treatment or outreach to Abra Pampa residents concerned about the issue of lead, responded with the dichotomous "healthy professional" versus "sick poor" explanation for why certain residents, or groups of residents, report having high levels of lead in their blood: "It's a question of who knows how to take care of themselves. They (poor people) buy wine instead of milk [which helps mitigate the effects of lead ingestion]", she says, claiming that she and several of her colleagues lived near the pile of waste in the town center for years with no apparent health problems.

Additionally, three interviewed doctors claimed that lead is simply "no longer a concern" among Abra Pampa residents who visit the hospital. "We have so many other problems here now," one of them said, "like alcoholism, depression, cancer…nobody talks about lead anymore."

In interviews with the University of Texas Human Rights Clinic in Spring of 2009, officials working in the federal and provincial mining sectors also reflected a class bias that blames Abra Pampa residents for their own contamination. Regarding the sign and fence that were put up in the Barrio 12 de Octubre, Luis Ferpozzi, who heads GEAMIN's Abra Pampa remediation project, noted that "illiteracy" was to blame for people's contact with lead there (implying that they simply could not read the sign that had been placed there warning them that the neighborhood was contaminated). Another official in the provincial mining sector said that Barrio 12 de Octubre residents "don't understand" the risks that lead poses, and "it's not the government's fault" that someone cut the fence to be able to walk across the neighborhood again.

Some interviewed residents noted that people who "complain about lead", namely those who are party to Quintar's lawsuit, only do so to in order to make money (and it should be noted here that none of these quotes are from residents who *are* party to the Quintar suit):

> "There's only one thing that's true about that lawsuit, and that is that people want to become millionaires."
>
> "People never talked about lead until money was involved. Now suddenly everyone says they're contaminated."
>
> "They say Barrio 12 de Octubre is contaminated, but they don't do anything about it. They still drink the water. They still walk on it [field on the lead waste]. And for that, Quintar will give them money."

The class-based discourse that we see in the stories and quotes outlined above, which outlines a "healthy professional" versus "sick poor" dichotomy, shows what Auyero and Swistun call "misinformation," "when residents assume that lead contamination is clustered in the poorest section [of town]" and "shifted responsibility," "when respondents argue that poor parenting is responsible for high levels of lead contamination." Here, illiteracy, alcoholism, and money-grabbing are offered as "explanations" for why people, particularly those living in Barrio 12 de Octubre, talk about lead. This ignores and discredits the reality that people like Elisa and Rocío face: indifferent doctors, no means to buy the products that might help them stay healthy, and the fact that Barrio 12 de Octubre has been largely ignored in remediation plans to date. These discourses confuse and obscure the real causes and solutions of lead contamination in the town, and also avert responsibility to provide "human remediation" by claiming that contamination is preventable.

CHAPTER 6: THE "HIDDEN STRUGGLE": RESISTANCE TO DENIAL OF CONTAMINATION

One of the original research questions of the present study of Abra Pampa was to explore relationships between "toxic uncertainty" and an apparent lack of collective mobilization, a link that is suggested in Javier Auyero and Débora Swistun's case study of Flammable. In the introduction to this case study, I mentioned that after spending a few weeks in Abra Pampa, it is unclear whether a similar link can be drawn here. Part of the reason for this lies in the challenges that short-term fieldwork presents; without a more detailed historiography of the town and the operations of Metal Huasi, and perhaps without a sustained presence in Abra Pampa, it is difficult to gauge how the majority of residents feel about the topic, what has motivated periods of collective mobilization, and to even identify all the moments that residents feel constituted significant periods of collective mobilization around the issue of lead.

However, part of the reason is also personal. Most of my in-depth conversations and sustained relationships in Abra Pampa have been developed with people who say they have long been a part of an "invisible" struggle against an issue that has historically been equally "invisible". Given the origins of my work in Abra Pampa with the Human Rights Clinic, which is entirely sympathetic to their cause, I feel that it would do them a disservice to present Abra Pampa as a place where there is a total "absence" of mobilization or as a case of a "failed" social movement. Rather than drawing a conclusion on whether uncertainty has precluded mobilization or if Abra Pampa is a "negative case" (in social movement theory), I would like to present resistance to denial of lead contamination as it exists today, even if it is not highly public or coincident with

sustained protest, and some of the obstacles residents say they face to framing lead contamination as an actionable grievance.

In their case study of Flammable, Auyero and Swistun reference several other academic studies that affirm that "the theoretical and empirical possibility" of positive change in environmentally degraded communities exists.[65] According to these studies, some of the groundwork for these changes lies in engaging public agencies, pointing out apparent contradictions in State discourse, and networking with other like-minded groups and actors. In presenting the "invisible" struggle against opaqueness, misinformation, and breaches of rights associated with lead contamination in Abra Pampa, this chapter outlines what some of the possibilities for change in the town could be, as voiced by the protagonists of this struggle. Here, two major "frames" have emerged: one is focused on criticism of lead as a continual threat to people's health and livelihoods – particularly that of children, and which is particularly critical of remediation efforts – and another that uses environmental contamination in Abra Pampa as a microcosm of problems associated with the mining industry in Argentina, couching the problem of lead contamination there in broader land rights struggles. These frames are presented through the stories of Carlos, one of the community members who is notoriously vocal about the issue of lead contamination, and the members of the Biblioteca Andina, respectively.

CARLOS: "WE ARE MADE OF LEAD, AND READY FOR THE BATTLE!"

"I was eight years old when I first came to Abra Pampa. I saw those black clouds [above Metal Huasi, which was then operating] and knew that one day I would fight them." This is how Carlos, a charismatic Barrio 12 de Octubre resident and outspoken

65 Auyero and Swistun, 139.

critic of the government's inaction on lead contamination, remembers the origins of his preoccupation with lead contamination in Abra Pampa. Originally from a nearby rural community, he often traveled to Abra Pampa with his family to buy food and visit friends, and remembers "how it would burn when you breathed here, and how it would rain lead when Metal Huasi was working." He moved to Abra Pampa permanently in the mid-1990s and says he loves life in general there, but in recent years, it has been framed around a near-constant struggle against the municipal government to remove lead waste, to recognize the extent of the problem of contamination, and to provide what he calls "human remediation" for people with high levels of lead in their blood.

"There is no remediation here," he says, "neither environmental nor human. So we have to keep screwing with them [*"seguimos jodiendo"*], because they've been screwing with us ["*que ellos también nos han jodido"*]." In the early 2000s, the municipal government granted Carlos a plot of land in the Barrio 12 de Octubre that is adjacent to the spread of heavy metal waste that was left there. Today, when Carlos opens the door to his yard, it comes within centimeters of touching the wire fence that was installed around the spread of waste there several years after he built his home. Between his door and the now fenced-off spread of lead waste, there is a small metal cover to what is labeled a "potable water meter" – about half of a meter away from where the fence that marks the border between "safe" and "unsafe" lead begins. Carlos was not aware of the harmful effects that the Metal Huasi waste just outside his door would have until 2003, when provincial politician and lawyer Riad Quintar took samples of blood from him and his children, who were determined to have levels ranging from 15 μg/dL to 26 μg/dL.

Since that time, Carlos has become the unofficial spokesperson for those concerned about lead contamination, and one of his principal preoccupations has been to

"give a face" to the problem. He often refers to his home as a "base", the reason for which he continues to struggle for recognition of the consequences he and his family have suffered for governmental inaction on accumulation of lead waste in Abra Pampa and for failure provide adequate health care for dozens of affected families. Carlos says that in the past, the municipal and provincial government has offered him money to move halfway across the country to Córdoba to, in his words, "shut me up." "But I won't do it," he says. "I'm the owner of this house, by this lead, and I'm not moving so I can keep fighting."

"This is the base," he says, gesturing to his yard, a well he is beginning to dig, a garage he has just built, a car he is in the middle of repairing. "Abra Pampa is a bullet factory," he jokes. "We are made of lead, and ready for the battle!"

Carlos's home does serve as a "base" of sorts for other critics of the denial of contamination in Abra Pampa, particularly for other plaintiffs that are party to Riad Quintar's suit against the municipality. When Quintar's firm hired private teams of doctors to come to Abra Pampa to take samples of residents' blood, Carlos's home became a makeshift "laboratory" of sorts where people would come to have their blood drawn. Quintar and his partners come to Abra Pampa periodically to discuss progress on the case, and when they do, they meet at Carlos's home, where plaintiffs often fill the entire yard.

For a time, Carlos says, many of the plaintiffs in Quintar's suit (which now totals about 500) formed part of a group known as the *Autoconvocados por el Plomo* – "Self-convened on Lead" – which has largely "disbanded" (in the sense that they no longer meet regularly) but whose members still attend meetings at Carlos's house when Quintar and his partners visit from San Salvador de Jujuy, and who constitute a network of people whom Carlos dubs "the informed." He takes pride in being perhaps the most well-known

and among the most consistently vocal critic of the municipal and provincial government on the issue of lead, in being one of the first people who visiting reporters contact, and in being one of the only of what he terms "regular citizens" who was personally invited to CESEL's initial meeting with Abra Pampa residents in 2010.

Carlos fastidiously documents all news on lead contamination and remediation progress in Abra Pampa, including not only newspaper articles, pamphlets, and announcements on remediation when they are circulated in Abra Pampa, but also any other information related to lead or contamination sampling, including private studies neighbors have commissioned on their tap water. In addition to having been offered money to move halfway across the country, Carlos notes that he has been threatened by provincial officials when they visit Abra Pampa, and that one day an angry neighbor broke a bottle and shook it in his face, calling him an "agitator".

"I don't open my door for just anyone," he says. "I don't go to the municipality. They just throw me out. They know that I know they're not doing anything in Barrio 12 de Octubre."

During the course of my research, Carlos has introduced me to many people – all parents of children who have high levels of lead in their blood – who he calls "the informed," the people who recognize that they and their children have lead in their bodies, and who will suffer irreversible effects because of it. These residents have been markedly more reserved than he is when they talk about lead, a fact which is likely related to the fact that I am a conspicuous outsider, and that Carlos is notorious for leading journalists and lawyers around town to "give a face to the lead," as he often puts it.

"I'm the only crazy one!" he says. "I'm the only one tells people lead is a problem. These are good people, but they're afraid," he says after one short meeting with

a woman who was particularly reluctant to talk about lead ("Lead here is bad, but you have to talk to my husband. He knows more about it," she says, a common response I heard from women.). "They say journalists have disappeared [when they write about lead], they don't want to get in trouble with the municipality. The struggle is half-hidden, you know?"

Indeed, after spending more time and repeatedly visiting several families who Carlos has named as part of his "network," they began to show me things that they have hidden. One family shows me a tattered copy of a magazine from 2007, which has an article for which they gave an interview on how lead was affecting their children, which they hid under a stack of books on a shelf "so the municipality doesn't know we have it." Another resident leaves the interview for a moment to bring me an envelope from another room with photos from a march in which he and others took place in 2007 from Abra Pampa to San Salvador to draw attention to the lead. "I had to find it," he says when he presents me the envelope. "I hid it a long time ago."

The fact that public, sustained mobilization seems to have gone away when the pile of lead does not mean that concern has as well. There is a network of "invisible" residents who do not lead marches but do stay informed on the effects of lead and progress on remediation. It is difficult to say exactly why public mobilization among these residents has not been maintained, and I was not able to spend enough time with all of them to glean any kind of nuanced understanding of what exactly changed that has kept them "underground" instead of part of a more visible *"Autoconvocados"* group. They represent a group of residents who, as part of the Riad Quintar suit and largely residents of the Barrio 12 de Octubre, are using their "contaminated" status to challenge the municipality and who give a face to the contamination that is present in their neighborhood.

BIBLIOTECA ANDINA: "REMEDIATION IS A NEOCOLONIAL PROJECT."

The Biblioteca Ñaupayachaykuna – Quechua for "wisdom of our ancestors" – is located in a small room just off Abra Pampa's central plaza. Popularly known as the Biblioteca Andina, or "Andean Library," it is run by a small radical indigenous rights group has remained active on the issue of lead contamination by linking the case of Abra Pampa to a broader movement opposing the transnational mining presence in Argentina, particularly on indigenous territories, calling the promise of remediation for contamination that often goes hand-in-hand with extractive industry activity part of an international "neocolonial project."

The Biblioteca Andina primarily serves as a community resource center on critical social thought, and also serves as a sort of gathering point for land rights activists in Abra Pampa and the region. It represents one of the few spaces for resistance in a political climate that is impermeable on the human effects of the lucrative export-oriented mining industry. Members of the Biblioteca Andina frame the issue of contamination as the outcome of a structural problem, naming capitalist development that relies heavily on transnational mining in Argentina as a threat to communities in the region. The Biblioteca Andina's framing of contamination and problems with remediation as representative of the exploitative practices of the transnational mining industry is a radical stance that attempts to point out the systemic root of local oppressions.

The information provided here on the Biblioteca Andina is compiled from nearly daily visits to the library in June and July of 2010, and an extensive 6-hour interview with four founding members in late July of 2010. All members quoted here asked to remain anonymous. The eleven members of the board of the Biblioteca Andina are in what they

feel is a minority of Abra Pampa residents who are consistently critical of the issue of contamination, and of that minority, they are the only ones who explicitly name transnational mining as their "enemy" in voicing discontent with lead contamination. They are looking beyond the immediately apparent health and environmental consequences of lead contamination to call attention to the structural global forces that are at the root of these problems in Abra Pampa and in many other places in Argentina where mining plays a prominent role. It is currently run by eleven Abra Pampa residents who advocate for a smaller-scale local political and economic structure.

The Biblioteca Andina has used Metal Huasi and the issue of lead contamination stemming from its activities as a "symbol" of transnational mining and remediation projects gone wrong, attempting to link people's general awareness of the health and environmental problems to broader global forces that they argue are threatening indigenous communities. This is a particularly tenuous frame in Abra Pampa, as the only direct link between contamination and the transnational mining industry is that lead waste that has been removed so far was done so under the auspices of the semi-private "Chamber of Mining" of the province of Jujuy, which is comprised of representatives of private mining companies that work in the area. As has been mentioned earlier, the waste they hastily and partially removed in late 2008 is now in a nearby lead mine owned by Minera Aguilar, which is owned by the Swiss mining group Glencore AG. Many residents of Abra Pampa who were interviewed during the course of ethnographic research share a general suspicion that the Chamber of Mining only removed waste from which its representatives knew they would be able to profit. The challenge for members of the Biblioteca Andina is to abstract this sentiment to a general criticism of the transnational mining industry, which is one of their strongest causes.

One of ways in which the members of the Biblioteca Andina use local struggles to resist transnational mining is linked to the library's mission to recover and promote the indigenous Kolla identity. Its members regularly hold workshops and conversation hours to promote the study of Quechua, a language that is indigenous to the area but that is barely spoken in the region anymore. Members of the library have tried, in public workshops and in pamphlets they have generated, to demonstrate how both the logic and contaminating effects of the transnational mining industry threaten local cultural identity and survival. Founding members have emphasized in interviews that in Quechua, there is no equivalent word or concept for "personal freedom," as it is believed that each person is born with the obligation to care for each other and for the *Pachamama*, "Mother Earth." "The logic of capitalism and personal profit isn't part of our culture," one of the founding members noted. "When we say 'no mining in Jujuy', we also say 'no' to that logic." Additionally, the Biblioteca Andina emphasizes that contamination and taking resources from the earth goes against cultural traditions that emphasize care of the *Pachamama*. "Making a hole in the *Pachamama* to take things out would be the same as making a hole in your mother," a founding member noted. "And look what happens when you do that," he said, gesturing toward an area of his neighborhood where waste from lead taken from nearby mines remains untouched.

The Biblioteca Andina is particularly critical of efforts to promote "sustainable mining" in the region, as members say that accepting mining activity, even on "sustainable" terms, is still not in the local community's interest. "Remediation is a neocolonial project," one of the founding members told me. "'We'll take your water, damage your land, make money, but then fix the problems we created.' That sounds like colonialism, doesn't it?" When members of the Biblioteca Andina talk about remediation, they almost always criticize the Inter-American Development Bank and the

provincial government of Jujuy for rhetorically "engaging" with the community through news reports on meetings with the community (to which the members claim they are never invited), but in reality failing to provide any proactive, transparent information on progress of remediation. Private transnational companies such as the aforementioned Peruvian enterprise CESEL are contracted to determine the levels of risk in the town, yet results of these studies are rarely divulged to the community. "Where is that money going?" one of the members of the Biblioteca Andina asked in an interview. "They [municipality of Abra Pampa] pay these experts not to tell us anything, while we suffer. Jujuy. Mining capital of Argentina."

Indeed, public criticism on contamination stemming from extractive industry activity has been an especially difficult issue to discuss in the province, which is why some Abra Pampa residents talk about the State's stance in an almost conspiratorial tone. Members of the Biblioteca Andina acknowledge that framing the issue of contamination as a microcosm of general structural problems associated with transnational mining is difficult in Abra Pampa precisely because Minera Aguilar, the company now owned by the Swedish company Glencore that has ostensibly stored the lead waste that has been taken from Abra Pampa so far, maintains a strong presence in the town. Minera Aguilar trucks, jackets, and hats are commonly seen in the town, and ads for employment in the nearby lead mine are plastered to places such as the doors of the town's hospital and bus station. "We want to say "No" to mining in Jujuy. Period," one of the founding members explained. "But it's difficult because they (mining companies) play with our basic needs." The founding members of the Biblioteca Andina claim that many of the newer models of cars, and possibly even newer houses in the town, have been bought with "silver/*plata* from the mine" (in Argentinean Spanish, "silver" and "cash" share the

same word, *plata*, and are often used interchangeably in tongue-in-cheek dialogue on the subject of the lucrative mining industry.)

In trying to call more public attention to lead contamination in Abra Pampa to advocate radical systemic economic change, members of the Biblioteca Andina are attempting to maintain local "ownership" of the struggle, while connecting with communities throughout the area that are similarly affected by mining activity. Biblioteca Andina members, who are in a very slim minority in Abra Pampa, note that reliance on employment on mines, plus a general fear of speaking out against a largely impermeable State, make it difficult to mobilize Abra Pampa residents around their cause. "They took away the small mountain of lead in the town center, and now people say, 'Well, that's a thing of the past,'" one member noted. When more immediate "solutions" for local concerns become generally accepted, it is difficult to garner support for a broader-looking, more global solution to the problem.

The testimonies present here – in Carlos's affirmation that he and a whole network of residents are "ready for war" and the Biblioteca Andina's resources and discourse on opposition to mining – represent the fact that empirical "potential" for change and mobilization exists in Abra Pampa. Despite the fact that many residents say that collective mobilization died down after the pile of lead was taken away from the Metal Huasi site in late 2008, there remains a core group of concerned citizens who note that contamination in their bodies, homes, and surrounding environment is a political issue, and use said contamination as a means of challenging State policies (insufficient remediation, links to transnational mining companies). The relative lack of collective mobilization in Abra Pampa that coincided with initiation of remediation in 2008 may be read as "hope," as in Flammable, "in what the government, the companies, or lawyers

and judges will do *on their behalf*, not on what they can jointly achieve,"[66] but the fact that many are dissatisfied and distrustful of government actions toward remediation so far may motivate future public discussion.

[66] Auyero and Swistun, 133.

CONCLUSION

The question of lead contamination in Abra Pampa is fraught with ambiguity. It has provoked waves of protest from Abra Pampa residents, attracted sporadic investigations from outsiders, garnered simultaneous acknowledgment and denial of health concerns from various State agencies, and become (at least on paper) the object of a recent Inter-American Development Bank directive to promote "environmentally sustainable" activities in the mining sector. Today, however, there is no common narrative on contamination among Abra Pampa residents. Though most are aware of the potential health risks that Metal Huasi waste poses, many interviewed residents noted a general subsidence of public concern on the issue once the most visible, emblematic portion of it was taken away in early 2009: the 15,000-ton pile at the Metal Huasi site. Residents now await the full completion of environmental remediation, and in the meantime, their exposure to dangerous toxins has not been minimized. Hundreds of residents living in the Barrio 12 de Octubre continue interact with lead waste daily, due to its close proximity to homes and general easiness of accessibility. In addition, barely-visible *humos blancos* continue to spread throughout the town. Absent the strikingly visual reminder of its contamination and as the result of the intersection of multiple discourses on its extent and gravity, the issue of lead waste in Abra Pampa has largely become obscured in the public eye.

This study does not intend to suggest that there is no concern on the potential risks associated with lead waste in the town. Rather, it is an attempt to show that the "toxic uncertainty" that has arisen is a product of apathy and structural discrimination from agencies leading projects of development related to the mining industry. Multiple discourses on contamination often fall along class and lines, and tend to defer to the

institutions that are responsible for a problematic, misguided remediation effort that does not address the human impact of environmental risks. These multiple discourses reflect a lack of consensus on the extent and gravity of lead contamination, which has affected the degree to which it is defined as an objective health threat to all residents. Furthermore, the fact that lead has been a "normal" part of the landscape in Abra Pampa for decades has presented challenges for those who seek to define it as an intolerable injustice. This normalization of contamination, and a lack of clear, consistent information on the health and environmental effects lead waste poses (particularly in the time since the environmental remediation plan was drafted), has made it difficult for residents to identify and define the extent to which lead is responsible for health problems, and political authorities to offer blanket denials of criticism for failing to provide environmental and "human" remediation that adequately addresses health concerns. Those who do maintain that lead is a problem find themselves in the position of needing to, as one resident put it, "convince" governmental and health authorities that they are, in fact, affected.

Various State actors have attempted to downplay and deny risks that residents face in Abra Pampa, perhaps in the name of protecting the lucrative mining industry. Public discrediting of studies that have revealed unfavorable aspects of the human consequences of the industry are labeled "scientifically invalid", and intransparent management of waste appears to be an attempt to avert "issueness" that labels lead waste in Abra Pampa as an effect of mining industry activity in Jujuy. Further, the rhetorical monopoly on "legitimate" information entrenches power imbalances between the local government and those who suffer from lead contamination in Abra Pampa, and nonexistent or contradictory scientific study results may be read as attempts to keep the issue of lead at the margin, or not on any political agenda at all.

Information from "outsiders" on the question of lead has both reified and denied problems people believe are associated with lead, and interventions toward remediation – while promising on paper – have both compounded confusion on which parts and locations of lead waste are "most harmful" and entrenched distrust in government officials charged with carrying it out. While many credit health studies with helping provide a frame around which for people to mobilize to have lead taken out of Abra Pampa, but they also exacerbate confusion when people get contradictory results – or never receive their results at all. The pace of remediation and the intransparency with which it has been managed have given host to a slew of rumors that signal distrust in the provincial government for its ties with the mining industry, and also send mixed signals about which lead waste is dangerous, given the fact that much of it remains in the town.

Problems associated with lead contamination are also marginalized within Abra Pampa itself, namely through residents' denial of the idea that lead can be an objective threat to everyone. Discourse on contamination tends to fall on class lines. A "sick poor" versus "healthy professional" dichotomy has developed, one in which poor people's behaviors or "illiteracy" is blamed for their own contamination, while people who do acknowledge suffering from lead contamination attribute the fact to poor, discriminatory social services in the town. The "sick poor" versus "healthy professional" dichotomy fits within a broader narrative of "social decline" in the town.

Finally, those who have remained consistently critical of the government and of the prolonged existence of lead waste in Abra Pampa feel they are part of an "invisible struggle" to give a voice and call attention to the problems they and their neighbors face due to lead poisoning. They offer their contaminated bodies and homes as irrefutable evidence of the damages lead can cause, and link the presence of lead waste to a broader, more radical political struggle to stop mining activity in the town and province. These

residents frame lead contamination as a means to subvert the State's "disinformation" campaigns, as well as to advocate smaller-scale, autonomous politics. These residents – though admittedly in the minority of the population in Abra Pampa – represent some "empirical possibilities" for positive change in Abra Pampa.

The implications of these snapshots for major strands of thought on the exercise of power, particularly the perspectives of Lukes, Crenson, and Gaventa in Chapter Two, are as follows. These authors' definitions of "power" hinge on latent conflict; coercion alone does not define power, but keeping things from the public political arena might reflect a similar lack of political debate, upheaval, and "issueness" at the grassroots level. In a way, the case of Abra Pampa does appear to fit into this model of the "third dimension" of power, since public agencies and officials both recognize and deny a presumed objective health threat, and manage the issue intransparently. This violates citizen's rights to information, health, and a healthy environment, yet the promise of an "ever-imminent" environmental remediation is, perhaps, meant to keep these grievances at bay.

One key component of Gaventa's particular conceptualization of power, that of the "shaping of beliefs about the order's legitimacy or immutability," which maintains inequality. The very fact that there is a core – if minority – group of citizens who are dissatisfied with remediation plans (who are consistently critical of its pace, intransparency, and manipulation of information) seems to show that Abra Pampa residents do not believe the political order is "legitimate" or "immutable". They continue to use claims of measured levels of lead in their bodies and environment to challenge the State and its policies, sometimes radically, by using contamination as an example of the ills that unchecked industrial activity can have on "invisible" communities such as Abra Pampa.

What this case study adds to the literature on uncertainty, I hope, is a sketch of the "empirical and theoretical possibilities" for positive change in the town. Abra Pampa has many things in common with case studies of other highly-contaminated communities which face similar levels of "toxic uncertainty" – namely that conflicting narratives reflect greater social and power imbalances in the region, and that competing discourses construct uncertainty on the sources and effects of contamination. Though here it is perhaps easier for residents to name the "culprit" of the environmental suffering they endure, since lead and Metal Huasi are generally considered to blame, rather than multiple contaminants stemming from multiple factories, there is still disagreement over how and whether lead continues to pose a serious health risk to all residents (particularly since efforts toward "remediation" began a few years ago). Still, the fact that several past "waves" of protest have already occurred in the town, and that a core group of concerned residents continues to try to "convince" others that there is indeed still harmful lead contamination in the town and in residents' bodies, suggests that maybe residents are not as acquiescent or compliant as it may seem on the surface.

Another major difference between Auyero and Swistun's case study of Flammable and that of Abra Pampa is that, while in Flammable presumably people are hoping to leave to move to a different neighborhood as a "solution" to the problem of contamination, in Abra Pampa there have been far fewer instances in which people expressed a desire to leave, possibly due to its different rural and cultural context. As a town whose residents overwhelmingly identify as Kolla, there is a strong defense of territory that many activists in the area draw upon to further defend their right to live in a healthy environment, and which has aided in building consciousness of an objective threat that lead waste poses. Additionally, many residents cited the tranquility of Abra Pampa as a positive aspect of life there, one which they would not trade to live in another

town or city. These strong territorial ties may contribute to invocation of rights principles when advocating for cleanup of the lead waste, and residents often refer to the *Pachamama* and familial ties they have to the area as reasons not to leave, perhaps in spite of health problems that lead may pose.

In this sense, Abra Pampa mirrors several other cases in the province of Jujuy, which is mostly rural and has a relatively high number of indigenous communities who have recently begun to push for greater territorial autonomy and where a "*No a la mina*" (literally "No to the mine") movement has gained momentum in recent years. As is seen in the discussion of the Biblioteca Andina, Metal Huasi has been taken as one of many symbolic cases of the environmental damage that can be wrought with mining activity, making Abra Pampa one of many locations in the province of Jujuy which has become synonymous, at least to environmental activists, with the type of environmental risks that are posed there. These towns' "tag lines," which often come up in discussions with environmental and indigenous rights activists in the area, highlight the fact that their very identities are beginning to be formed around the toxins they are believed to contain: "Abra Pampa: Lead in the blood," "Susques: Arsenic in the water," "Palpalá: The most contaminated city in Argentina," "Pan de Azúcar: Cyanide in the soil." These local environmental conflicts are abstracted to join larger political struggles in the area, and the fact that provincial mining authorities so strongly try to discredit or prevent independent studies from groups like INQA (and researchers like myself and colleagues with the Human Rights Clinic) may eventually bolster activists' causes.

The rising consciousness of the actual dangers present in these areas, namely as the result of mining and other extractive industry activity, coupled with a rising consciousness and use of rights language and networking between similarly-affected communities in the area, may present a promising future for positive change in Abra

Pampa. Despite the fact that most interviewed residents feel that public protest on lead contamination "peaked" immediately before the 15,000-ton pile of lead was taken away from the Metal Huasi site, there remains a strong current of concern on the effects that exposure to remaining lead waste has on residents' health and livelihood. Whether this concern will translate to another sustained wave of public protest remains to be seen, but these critical voices, who often say they feel as though they are fighting in an "invisible" struggle, give a name and face to a sustained health crisis in the town.

Studies of communities that face "toxic uncertainty" may help to shed light on how and why conceptualization of environmental justice emerges. Literature and conceptualization of environmental justice often centers on movements to stop a certain activity from happening. In cases such as Abra Pampa and Flammable, where contamination has a "slow incubation period" and remains long after the industrial activity has ceased, there is an additional layer to uncertainty. In Abra Pampa, for example, lead has not historically been a political issue, and confusion on the extent to which it presents actual risk stems partially from the process of trying to make it so. Though the source of contamination here is known – lead waste from Metal Huasi – it is not entirely clear exactly how and why this waste is harmful, nor is there a concrete activity around which neighbors can mobilize to end the problems they believe they face from the contamination (i.e., no factory to close).

For them, the challenge in raising consciousness of – or even conceptualizing – the continued injustice that they and their neighbors face, despite partial removal of lead waste, has to do with reframing the lead waste that remains as a continual threat. Part of the reason this is so difficult is that the lead waste that remains in the town is still very much a part of residents' daily interactions with their environment – lead waste in the Barrio 12 de Octubre doubles as a soccer field, *humos blancos* continue to be distributed

around town, and neither of these components are highly-visible or have been part of sustained studies on health and environmental contamination in the town.

Recently, however, renewed interest in collective mobilization on the environment seems to be on the horizon. In November of 2010, the city council of Abra Pampa approved an ordinance to prohibit mining in Abra Pampa, a move that put environmental and indigenous rights at the forefront of political discussion and which is related to the widespread presence of contamination there. While Abra Pampa mayor Ariel Machaca vetoed this ordinance in December of 2010, the veto was overturned about a month later as the result of citizen protest.[67] It is difficult to say whether this mobilization has been or will be sustained, given the politically hostile climate that exists in Abra Pampa between activists and Machaca, but the fact that it has occurred highlights that Abra Pampa, now notorious for lead waste that it contains, may see changes on the horizon.

[67] See Aranda, Darío. "Otro pueblo libre de minería contaminante." *Pagina/12*, 16 January 2011. Available at http://www.pagina12.com.ar/diario/sociedad/3-160565-2011-01-16.html

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